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Introduction

The members of the Editorial Board are grateful to the authorities of the University of Calcutta for giving permission and providing financial assistance for the publication of the volume 13 of the Calcutta University Journal of Information Studies (CUJIS) of the Department of Library and Information Science, Calcutta University.

The last issue of CUJIS was dedicated to the memory of Kaviguru Rabindranath Tagore as a mark of completion of his 150th birth anniversary. That issue was appreciated by different corners. In this issue twenty articles have been incorporated. Both primary and tutorial articles have been recommended because of the increasing demand of the existing students. The period from the publication of volume 10 to this volume is the period of historical landmark in the Department of Library and Information Science. Not only the introduction of semester system in MLIS course but also the introduction of 5-Year Integrated Course in Library and Information Science are the important achievements of the department. This integrated approach gives the department not only as a pathfinder among the academic disciplines of the University but also the introduction of MLIS 5 year course covering both Honours and Master degree in Library and Information Science in the Department of LIS, Calcutta University w.e.f. 2010 and direct admission after 10+2 Examination is a unique contribution in all respects. The pioneering course structure in LIS among the state aided Universities in India and the advantage of getting the MLIS degree in an integrated manner without loosing time of one and half years show a new dimension in the field of Library and Information Science of a century old LIS Education in India. The 50 courses in continuous 5 years with 10 examinations will make a student complete and a perfect lover of the discipline in true sense of the term.

In this issue the abstract of each article has been placed after the title of concerned article and from the next issue (vol 14), the standard of the references will be changed. Now the APA Style will be followed for using bibliographical references. The guidelines mentioned in the 3rd/back page of the CUJIS are to be consulted before sending any article for the publication.

Biplab Chakrabarti
Hony. Executive Editor

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Digital Preservation System in India: A Challenging Issue

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Abstract: Digital preservation becomes very much essential in the age of digital era. The paper briefly discussed about the digitization and digital preservation process. Importance and different methods of digital preservation described in details. The digital preservation process and its challenges are mentioned to give the clear picture of digital preservation system in India.

Keywords: Digitization, Digital Preservation, Digital Preservation Methods, Digital Preservation in India, Challenges in Digital Preservation.

1. Introduction: We are now living in the digital era where information is recorded, stored, retrieved and disseminated in the digital form. Now-a-days digital media has emerged as one of the most powerful media of information. Access to the digitized materials over the electronic networks is increasing day by day. Researchers, students, teachers and common people are now much more familiar with the digital and electronic documents. Practically digital technologies help to provide a new preservation solution for the documents in libraries. Digital technology as well as all other associated internet and web based technologies transform the library to information centre. The world of digitization is changing very fast. New standards, file formats, compression techniques, hardware components are evolving in this digital world. Librarians are need to familiar with these new concepts. Now librarians have to exploit the various facilities of information technology with the aim of sharing their resources for providing right information to the right users at the right time. One thing we have to remember that initial conversion of printed text into digital objects requires huge fund, diverse manpower and many more resources.

---

[1] University Research Fellow

[2] Assistant Professor

Today our capacity to record information has increased but the longevity of the media to store information has decreased. The Process of maintaining materials produced in digital formats in a condition suitable for use is a real challenge. Problems of physical preservation are compounded by the obsolescence of computer equipment, software, and storage media. These problems also refers to the practice of digitizing materials originally produced in non digital formats (print, film, etc.) to prevent permanent loss due to deterioration of the physical medium.

2. Digitization: Preservation is one of the oldest functions that librarians can perform. But now the role of preservation remains same but the concepts have been changed. Librarians now preserve the electronic or digital documents that is procured or transformed in the library. Over the last few years huge amount of information has been produced digitally and libraries have became major providers of information in digital format. Thus the digitization has become a common concept in the library and information centre.

Professor Mike Gerhard[1] defines the Digitization as, 'To translate into a digital form. For example, optical digitize image by translating them into bit maps. It is also possible to digitize sound, video, and any type of movement."

As per Wikipedia[2] Digitization is the representation of an object, image, sound, document or a signal (usually an analog signal) by a discrete set of its points or samples. The result is called digital representation or, more specifically, a digital image, for the object, and digital form, for the signal. Basically, digitization means simply capturing an analog signal in digital form.

Thus we can say digitization is transformation of print or other documents in digital format for better access and preservation of the document.

3. Digital Preservation: Digital preservation is a process by which data is preserved in digital form in order to ensure the usability, durability and integrity of the information contained there in. Digital preservation comprises the planning, resource allocation and application of preservation methods and technologies necessary to ensure that digital information of continuing value remain accessible and usable. The main purpose is to ensure protection of information of enduring value for access by present and future generations[3].

As per Wikipedia[4] Digital preservation is the active management of digital information over time to ensure its accessibility. Preservation of digital information is widely considered to require more constant and ongoing attention than preservation of other media. This constant input of effort, time, and money to handle rapid technological and organizational advance is considered a major stumbling block for preserving digital information. Indeed, while we are still able to read our written heritage from several thousand years ago, the digital information created merely a decade ago is in serious danger of being lost, creating a digital Dark Age.

According to V Harineeswaran and K Nithyananda[5] Digital preservation is a process by which data is preserved in the digital format for ensuring the usability, durability and intellectual integrity of the information contained therein. A more precise definition is: the storage, maintenance, and accessibility of a digital object over the long term, usually as a consequence of applying one or more digital preservation strategies. These strategies may include technology preservation, technology emulation or data migration.

Kyong-Ho Lee, Oliver Slattery, Richang Lu, Xiao Tang, and Victor McCrary[6] stated digital preservation involves copying the digital information onto newer media before the old media becomes so obsolete that the data cannot be accessed. In brief digital preservation is the storage of data in a digital form, using specific preservation techniques, file format and standards. In order to access, the digital objects are maintained applying one or more digital preservation method.

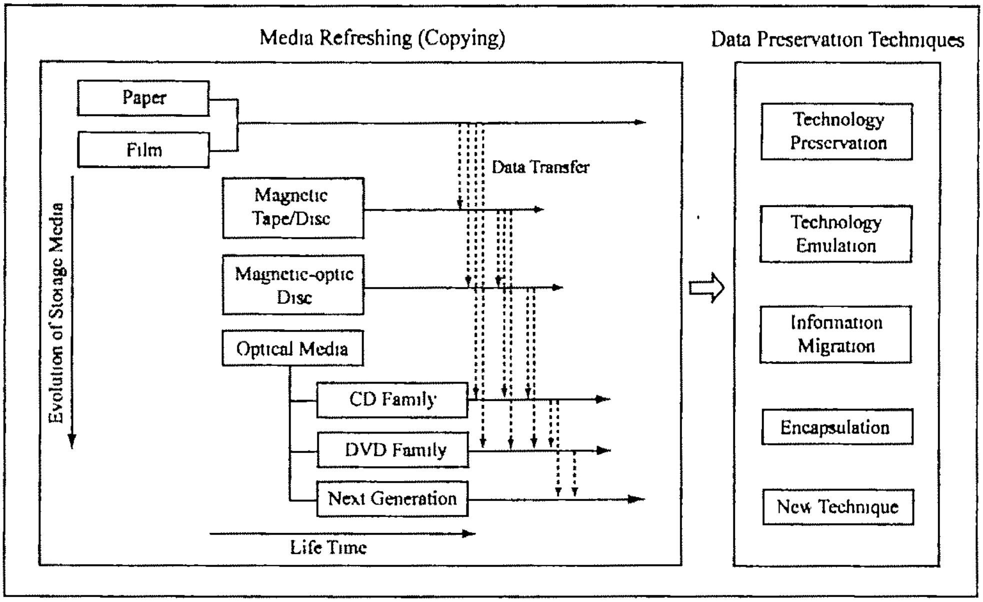
4. Importance of Digitization: In the present age digitization or conversion of digital document is quite common and obvious for meeting the requirements of the users. Role of the librarian is now service provider with the help of best available technology. To provide better services, born digital or converted digital document becomes the important tool for the librarian. The importance of the digitization or digital preservation can be well realized from the following points of view:

- **Preserve to use for posterity:** The role of the library is also preserving the document for future use. Digitization helps to keep the current document available for the future generation.
- **To capture, store, process and disseminate information in digital form:** The basic aim of this kind of preservation is to capture and store the available information using technology. Here information should be processed in such a way that the dissemination becomes much easier.
- **Save space and time:** Digital documents take very small place and can be accommodated easily. It also saves the time for searching or accessing the documents. Thus it becomes helpful to the user.
- **Assist in networking and resource sharing:** The previous concept of inter library lending now replaces by networking and resource sharing. To continue the resource sharing the library need digitization. In other way digitization facilitates networking and resource sharing in the library.

- **Information make available to remote users:** Through networking remote users can use the information available in the library. Only digitization process can help in this process.
- **Easy to use the digital document:** Use of the digital document is easier that other kinds of documents. Only primary learning is enough for any person.
- **Maximization of user's satisfaction**: Searching or browsing digital documents is much easier than other physical documents. Thus digital documents help to maximize the user's satisfaction than usual case.
- **Portability:** Digital documents occupy less space and it becomes much more portable than usual documents.
- **New value added library service**: Digital documents help to start new value added services which enrich both the library and the users.

5. Types of Digital Document: There are two basic types of digital documents. One is born digital and other is converted digital document. Library and information centres are concerned with both these types of documents. Born-digital documents mean the materials that originate in a digital form. The library procured this category in digital form only. So, born digital documents usually do not have any other form of copies. Converted digital documents are made for preservation of old and rare or fragile materials and after digitization access is given to digitized documents not to original documents. It is the duty of the librarian along with the other staff to preserve both the kinds of documents.

6. Methods of Digital Preservation: Now the digital preservation becomes quite common with the increasing need of the users and rapid application of digital technology in library and information centres. Several strategies can be adopted to address the primary problem of digital preservation. Each of these strategies meet some, but not all, preservation goals. Following diagram[7] gives a clear picture of progression of information preservation strategies.



A progression of information preservation strategies.

Above figure showed that the progression of information preservation starting from paper, film to modern optical media like CD or DVD. Basically these can be described as the evolution of storage media. All these preservation media needs some kind of techniques for preserving the information. According to K.Vinitha, S.Kanthimathi, S.Sampath Kumar & K.Tharani[8] showed some of the methods or strategies of digital preservation. Techniques and technologies for digital preservation are based upon the requirement and data types of the document.

- **Bit stream copying:** Bit stream copying is more commonly known as “backing up of data,” and refers to the process of making an exact duplicate of a digital object.
- **Refreshing:** Refreshing means copying information without changing it, offers a short-term solution for preserving access to digital material by ensuring that information is stored on newer media before the old media deteriorates beyond the point at which the information can be retrieved.
- **Durable/ Persistent media:** It may reduce the need for refreshing, and help diminish losses from media deterioration, as do careful handling, controlled temperature and humidity, and proper storage. Durable media

has the potential for endangering content by providing a false sense of security. (i.e., Gold CDs).

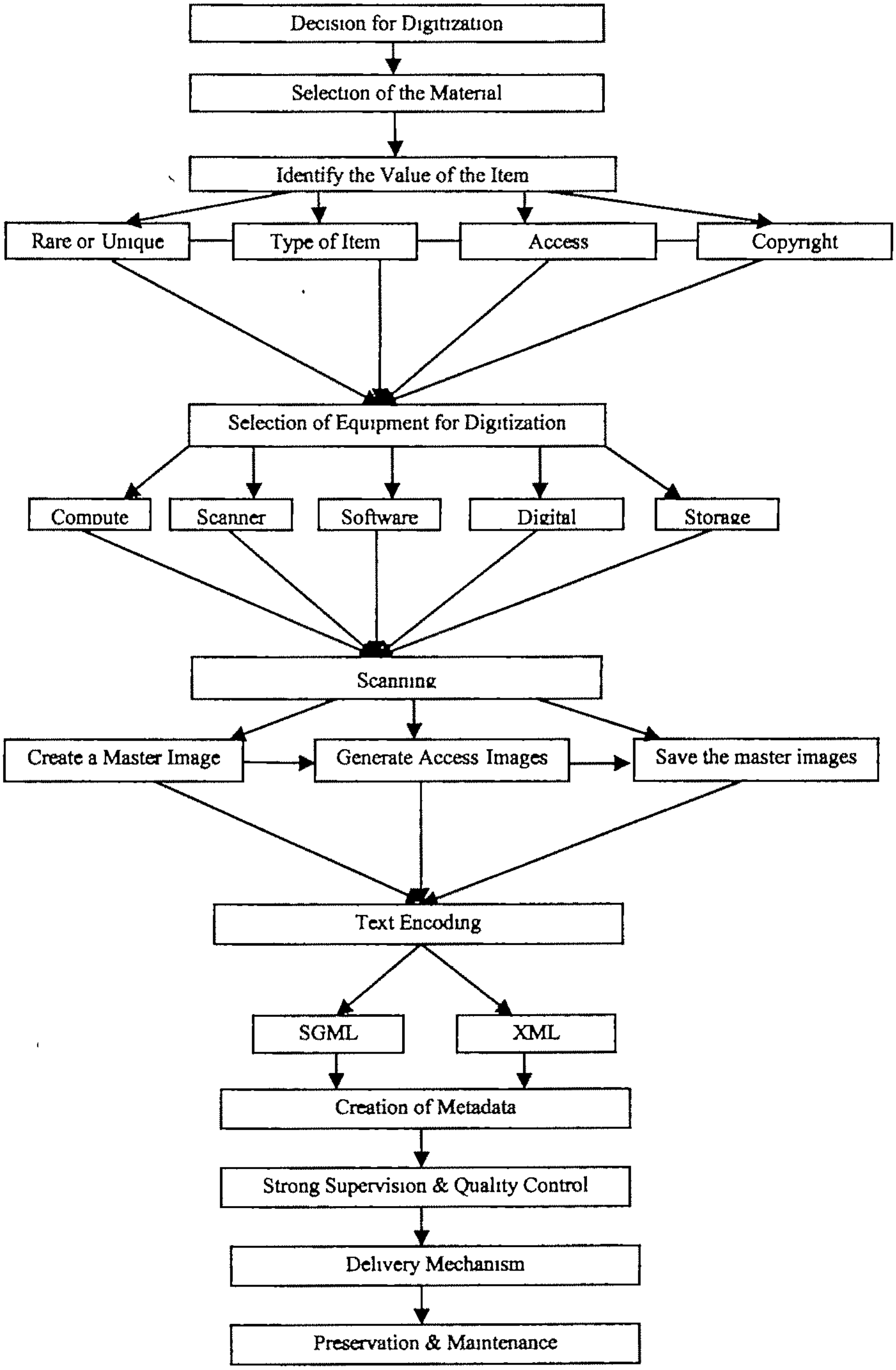
- **Technology preservation:** technology preservation is based on preserving the technical environment that runs the systems, including operating systems, original application software and media drives. It is sometimes called the "computer museum" solution maintaining obsolete technology in usable form requires a considerable investment in equipment and personnel.
- **Digital Archaeology:** Includes methods and procedures to rescue content from damaged media or from obsolete or damaged hardware and software environments. Given enough money, readable bit streams can be often be recovered even from heavily damaged media (especially Magnetic media), but if the content is old enough, it may not be possible to make it render able and/ or understandable.
- **Analog backups:** Analog backup combines the conversion of digital objects into analog form with the use of durable analog media, e.g. HD Rosetta or the creation of silver halide microfilm from digital images. Text and monochromatic still images are the most amenable to this kind of transfer. Given the cost and limitations of analog backups, and their relevance to only certain classes of documents, the technique only makes sense for documents whose contents merit the highest level of redundancy and protection from loss.
- **Migration:** Migration means to copy data, or convert data, from one technology to another, whether hardware or software, preserving the essential characteristics of the data, the purpose of migration is to preserve the integrity of digital objects and to retain the ability for clients to retrieve, display, and otherwise use them in the face of constantly changing technology.
- **Replication:** The term is used to mean multiple things. Bit stream copying is a form of replication. OAS (Open Access System) considers replication to be a form of migration.
- **Reliance on standards:** Reliance on standard may lessen the immediate threat to a digital document from obsolescence, but it is no more a permanent preservation solution than the use of Gold CD or stone tablets.
- **Normalization:** Normalization converted into a single chosen file format that is thought to embody the best overall compromise amongst

characteristics such as functionality, longevity, and resolvability. The advantages and disadvantages of reliance on standards also apply to normalization.

- **Canonicalization:** Canonicalization is a technique designed to allow determination of whether the essential characteristics of a document have remained intact through a conversion form one format to another.
- **Emulation:** combines software and hardware to reproduce in all essential characteristics the performance of another computer of a different design, allowing programs or media designed for a particular environment to operate in a different, usually newer environment. Emulation requires the creation of emulators, programs that translate code and instructions form one computing environment so it can be properly executed in another.
- **Encapsulation:** Encapsulation may be seen as a technique of grouping together a digital object and metadata necessary to provide access to those object appropriate types of metadata to encapsulate with a digital object include reference, representation, provenance, fixity and context information. Encapsulation is considered a key element of emulation.
- **Universal Virtual Computer (UVC):** The concept of Universal Virtual computer was developed by Raymond Lorie. It uses elements of both migration and emulation which allows digital objects to be reconstituted in their original form. The UVC concept consists of the UVC itself, a logical data scheme with type description, the UVC program (format decoder) and the logical data viewer.
    - **Authenticity:** The quality of being reliable or trust worthy.
    - **Fixity:** The state or quality of being fixed or unchanged.
    - **Compression:** Compression can be applied to many different kinds of digital objects, and can be either lossless. Lossless compression is fully reversible, so when a file is decompressed, it is bit for bit identical to its original. Lossless compression is always used for encoded text and may be used for images sound, video, etc., depending on considerations such as bandwidth, quality, and storage requirements.

➢ **Digital Tablet:** Kranch[9] proposes developing a digital tablet for preservation. The digital tablet technique does not precisely fit into the above categories. The tablet would have a self-contained power source, present the stored digital information on a screen as glyphs from a written language appropriate for the information, and have touch-sensitive controls to change the presentation and manipulate the information. Additionally, it should be able to withstand millennia of neglect under harsh conditions yet cost no more than a few dollars to produce and encode. It should have a storage capacity of dozens or hundreds of terabytes, and contain a simple serial read-only port to download the original digital information into an external system along with instructions on how to do it. However, the digital tablet may be considered to be another technology preservation method.

7. Digital Preservation Process: Digitization is a long term process and it needs to take several decisions. It is the decision making process in different steps. Following flow chart gives a clear picture of the digitization process:



The above flow chart shows the step by step methods of digital preservation in any kinds of organisation. It is also possible for some organisation not to think this way. Based on the above chart the following steps can be identified:

- First phase is related to the decision making and selection of the document to be digitized.
- Second phase is related to the choosing the right equipment for the process of digitization.
- Third phase concerned with the processing required to make the digitized materials easily accessible to users.
- Fourth or last phase relate to the delivery mechanism and preservation and maintenance of the digital collection and services.

8. Digital Preservation Scenario in India: Digital technologies are used for preserving digitized materials and access to these materials poses a considerable challenge in India. G. Dhansegaran[10] stated that the state of development of digital preservation in India remains largely experimental. Only a few Libraries/ archives have established digital preservation programs. Preservation of digital documents may require new investments and commitments by the organizations. Digitization initiatives in India is on initial stage and need to plan proper long term strategy to address the solution of different problem that come out from the different programmes. There is a need to draw proper policy framework and technology or technological tool is still unavailable in our country. In spite of that some major initiative is took place. Some of the important digital preservation programmes are:

- The Digital Library of India Project
- The Digital Library of ERNET India by Education and Research Network (ERNET)
- Centre for Development of Advance Computing (C-DAC) Digital Library Projects
- Khuda Bakas Oriental Public Library,
- Traditional Knowledge Digital Library
- National Mission for Manuscripts
- Indira Gandhi National Centre for the Arts [IGNCA] Digital Library
- Vidyanidhi

In spite of the above few important initiatives, it is found that the progress of the digital preservation project is quite inadequate in nature. Some of the university libraries started the digitization project but most of the universities are not in a position to take the initiatives. There are many lacunas found in the digital preservation projects of India both from infrastructural and human source. So, there is need to speed up the current situation.

9. Issues and Challenges in India: The preservation of documents in digital format becomes now necessary in Indian library environment. Because our country has one of the richest collections of manuscripts. Survey made by Indian National Trust for Art and Cultural Heritage (INTACH) under National Manuscript Mission[11] in the year 1988-90 showed that total number of estimated Manuscripts in India is 5,000,000. The preservation of digital documents is different in different organisation as per the need of the situation. Kenneth Thibodeau[12] stated that the preservation of digital objects involves a variety of challenges, including policy questions, institutional roles and relationships, legal issues, intellectual property rights, and metadata. Analyses of digital preservation projects in our country show the following challenges of digital preservation in our country.

- **Digital Longevity:** Longevity of the digital media becomes one of the prime concerns of the organisation. G Dhansegaran[13] described that information stored in digital format does not last forever due to the fragility of digital works. The life of data written to optical media such as CD-ROM or DVD may be measured in years. We have not yet achieved much stability in data storage technology. There are administrative, procedural organizational and policy issues surrounding the management of digital material.
- **Lack of proper Information & Communication Technology (ICT) Infrastructure:** M.G. Sreekumar and P. Sreejaya[14] stressed their concern for IT and Communication infrastructure for digital preservation such as:
  - High end and powerful Servers; Structured LAN with Broadband Intranet facilities, ideally optical fibre based Gigabit networks;
  - Required number of Workstations capable of providing online information services, computing and multimedia applications;
  - Internet connectivity with sufficient bandwidth, capable of meeting the informational and computational requirement of the user community;
- **Lack of Proper Planning and Integration of Information Resources:** Sreekumar and P. Sreejaya[15] stressed on the present library acquisitions in India are either paper based and electronic. In most of the libraries, paper based documents outnumber the electronic subscriptions and acquisitions. Some of the libraries need retro-conversion and digitization of library holdings too. Literature on related studies show that there is a severe lapse on the libraries with regard to proper planning of their information resources which are conducive for developing digital libraries. Also, the electronic resources penetrate to the libraries in a multiplicity of complex formats and with different access terms and conditions. These information resources are scattered and distributed across a wide variety of

publication types and a vast number of publishers. There is a dire need for proper planning and a meticulously framed content integration model which is achieved and implemented through world standard digital library technologies.

- **Rigidity in the publishers' policies and data formats:** Having successfully installed and configured a digital library does not qualify a library to automatically populate all its digital collection into the digital library. One has to obtain publisher's consent and copyright permissions for the same. Digital library software usually accept and process all popular and standard digital formats such as HTML, Word, RTF, PPT, or PDF. Most of the publishers put their materials in their own proprietary e-book reader formats, from which the text extraction becomes almost impossible.
- **Copyright / IPR Issues:** Issues of copyright, intellectual property and fair use concerns are posing unprecedented array of problems to the libraries and librarians are struggling to cope with all these related issues in the new digital information environment.
- **Standards:** Standard relating to several matters of digital preservation poses a great challenge to the service professionals. Dempsey, L. & Heery, R.[16] mentioned following kinds of standards used in digital preservation:
    - Standards for Architecture
    - Standards for preservation Content
    - Standards for Preservation Access
    - Standards for Interoperability
- **Hardware Failure:** David S. H. Rosenthal, Thomas Robertson, Tom Lipkis, Vicky Reich and Seth Morabito[17] said all hardware components must be expected to suffer transient recoverable failures, such as power loss, and catastrophic irrecoverable failures, such as burnt-out power supplies.
- **Communication Errors Systems:** Communication Errors Systems cannot assume that the network transfers they use to ingest or disseminate content will either succeed or fail within a specified time period, or will actually deliver the content unaltered. A recent study "suggests that between one (data) packet in every 16 million packets and one packet in 10 billion packets will have an undetected checksum error"[18].
- **Failure of Network Services Systems:** Network systems must anticipate that the external network services they use, including resolvers such as those for domain names and persistent URLs, will suffer both transient

and irrecoverable failures both of the network services and of individual entries in them. As examples, domain names will vanish or be reassigned if the registrant fails to pay the registrar, and a persistent URL will fail to resolve if the resolver service fails to preserve its data with as much care as the digital preservation service[19].

- **Media & Hardware Obsolescence** All media and hardware components will eventually fail. Before that, they may become obsolete in the sense of no longer being capable of communicating with other system components or being replaced when they do fail. This problem is particularly acute for removable media, which have a long history of remaining theoretically readable if only a suitable reader could be found[20]
- **Software Obsolescence**: Software components will also become obsolete very easily. This will often be manifested as format obsolescence when, although the bits in which some data was encoded remain accessible, the information can no longer be decoded from the storage format into a legible form[21].
- **Operator Error:** Operator actions must be expected to include both recoverable and irrecoverable errors. This applies not merely to the digital preservation application itself, but also to the operating system on which it is running, the other applications sharing the same environment, the hardware underlying them, and the network through which they communicate[22].
- **Natural Disaster**: Natural disasters, like flood, fire and earthquake cannot be anticipated easily. These kinds of threats may occur any life span of the organisation. These kinds of incidents become unavoidable. But the organisation must take proper initiative to prevent these disasters.
- **External Attack:** In a digital preservation system, there was every chance of system failure due to the external attack · through spreading viruses by network system. Digital preservation systems must ensure proper measure to prevent attack from any kind of threats.
- **Internal Attack:** Much abuse of computer systems involves insiders, those who have or used to have authorized access to the system[23]. Even if a digital preservation system is completely isolated from external networks, it must anticipate insider abuse.
- **Financial Failure:** Acquiring or conversions of digital resource need proper supply of money throughout the process. But due to the rise of price maintaining digital preservation centre becomes a great challenge to the libraries. Current ongoing costs for power, cooling, bandwidth, system administration, domain registration, made the condition more worsen than before.
- **Technological Obsolescence:** Technological obsolescence is another major hurdle in the preservation and management of digital resources particularly for long-term access. Data storage technologies from Floppy drive to CD drive to Pen drive are gradually becoming obsolete and many

are depending on web resources. Several options are being explored to deal with this cycle of obsolescence that falls in to three main categories[24].

- **Physical Degradation:** Besides the issues around obsolescence of file formats, applications, operating systems and hardware, there is the more basic question of how to deal with the fact that media physically degrade or become obsolete. How long will various media types last become a big question to the all concerned persons. Some company claim that writable CD's would last 217 years under certain conditions while others observe that such media start to degrade after only a couple of years[25].
- **Storage:** Improper storage may be the most common reason for premature media failure. Moderation of temperature and humidity are well known to extend the usable life of most storage media, but many other factors can help, too.
- **Handling issues**: Another major threat to storage media come from improper handling. Though many digital media give the impression of sturdiness and durability, they can be damaged by too casual an approach to use.

13. Conclusion: It can be well realised that the digital preservation is the need of today but how we could maintain it, is remain unexplored. Several researcher showed that the need of adapting different technologies to maintain and upgrade the digital preservation centre. Our country is in very nascent stage of digital information processing. There is still no clear cut policy made by the government. But still some of the organisations have started their digital preservation projects mostly financed by the central government. But there is need to grow the aware about the need of digital preservation among the service professionals.

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An Analytical Study of the Two Important Management Institute Libraries of Kolkata in the Cyber Age with a View to Challenges and Opportunities ahead

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< LIBRARY >
< KOLKATA >

Abstract:-
Management is an important and interesting field of discipline which is very popular among the young generation of our country. According to the demand and need of the subject there are so many management institutes running their courses successfully throughout the country. This article shows the present state and functioning of the two important management institute libraries of Kolkata city. We know that library is the heart of any kind of institution. The libraries of the management institutes are also playing a vital role in the dissemination of information. The libraries of the management institutes are doing the activities like selection of information, collection of information, preservation of information, organization of information, retrieval of information and dissemination of information. This study analyses the structure and functions of the two management institute libraries of Kolkata city in a lucid manner.

1. Introduction:-

The library is the heart of any kind of institution. The library of the management institute is also an important organ of that institute. The students, teachers, research scholars and other administrative staffs are the users of a management institute library. They are depending upon the libraries for their information requirement. The libraries of the management institutes are acting as the information resource centre for their clientele.

In Kolkata as well as in our country, the first management institute was established in the year 1953. The name of the institute is "Indian Institute of Social Welfare and Business Management" (IISWBM). The library of this institute is a beautiful library. It plays an important role in information dissemination. It acts as an information resource centre of the institute. It is a store house of knowledge.

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The library of the Indian Institute of Management Calcutta (IIMC) was set up in March 1962 and was named as "B.C. Roy Memorial Library" in the memory of Dr. Bidhan Chandra Roy, the then Chief Minister of West Bengal and the first chairman of the Board of Governor of the Institute. B. C. Roy Memorial library of IIMC is creating and sustaining an information environment that supports the educational and research requirements and enables learning and advancement of knowledge among the users of the IIMC.

2. Objectives of the study:-

(a) To identify the different types of services and activities of the management institute libraries for providing information to the clientele(s).

(b) To examine the types of documents available on different subject fields under the management science discipline.

(c) To identify the different tools and techniques for collection and dissemination of information.

(d) To know the availability of information regarding management science and other allied disciplines.

3. Importance of the Study:-

This study shows the present state of the two management institute libraries of Kolkata city. It analyses the procedures of information selection, collection, procession, preservation and dissemination of the two management institute libraries. It is an analytical study.

4. Scope and Coverage of the Study:-

This study covers the two (2) management institute libraries of Kolkata city. These are as follows:-

i) Indian Institute of Management (IIM), Calcutta, Joka, Kolkata – 700104.
ii) Indian Institute of Social Welfare and Business Management (IISWBM), Calcutta, College Square (West), Kolkata – 700073.

5. Methodology of the Study:-

A questionnaire was designed with unstructured mode. Interview was taken from the libraries on the basis of questionnaire. Simultaneously, the observation process as non-participant was taken into consideration. Data collected with the help of the questionnaire and interviews were processed into tabular form followed by interpretations and suggestions. Conclusions are drawn at the end of the study.

6. Analysis of Data:-

Table – 1

6.01. Distribution of Users of the Libraries of the Management Institutes

Name of the Institute	Number of Users
Indian Institute of Management (IIM), Calcutta	1000 (Approx.)
Indian Institute of Social Welfare and Business Management (IISWBM), Calcutta	1500 (Approx.)

After analyzing the above table, we can say that there is 1000 (approx.) no. of users in the library of the Indian Institute of Management (IIM), Calcutta and on the other hand there is 1500 (approx.) no. of users in the library of the Indian Institute of Social Welfare and Business Management (IISWBM), Calcutta.

Table – 2

6.02. Distribution of Printed Documents in the Management Institute Libraries

Name of the Institute	Books (Both Text & Reference)	Non-Books			
		No. of Journal Titles	No. of Back Volumes of Journals	Thesis/ Dissertations	Reports
Indian Institute of Management (IIM), Calcutta	1,26,000	500	43,000	-	10,000
Indian Institute of Social Welfare and Business Management (IISWBM), Calcutta	52,000	180	5,500	-	3,000

The above table shows that the library of the Indian Institute of Management (IIM), Calcutta has 1,25,303 no. of books (as on 20th October, 2008); 500 no. of journal titles; 43,000 no. of back volumes of journals and 10,000 no. of reports in its collection. On the other hand, the library of the Indian Institute of Social Welfare and Business Management (IISWBM), Calcutta has 52,000 no. of books; 180 no. of journal titles; 5,500 no. of back volumes of journals and 3,300 no. of reports in its collection. The no. of books includes both text books and reference books.

Table – 3

6.03. Distribution of Electronic Documents in the Management Institute Libraries

Name of the Institute	e-books	e-journals	e-news-papers	Other Electronic Documents	
				CD-Rom	Floppy Disk
Indian Institute of Management (IIM), Calcutta	[The library of the Indian Institute of Management (IIM) Calcutta procures databases of different publications from various publishers in different subjects.]	5,000 (Database)	20 (Approx.)	3,000	600
Indian Institute of Social Welfare and Business Management (IISWBM), Calcutta	1,200 Titles	1,100 Titles	14 (Approx.)	1,100	100

From the above table it is clear that, the library of the Indian Institute of Management (IIM), Calcutta has 5,000 no. of e-journal titles in its database; 20 no. of e-newspapers; 3,000 no. of CD-ROMs; and 600 no. of Floppy Disks in its collection. On the other hand, the library of the Indian Institute of Social Welfare and Business Management (IISWBM), Calcutta has 1,200 no. of titles of e-books; 1,100 no. of titles of e-journals, 14 no. of e-newspapers; 1,100 no. of CD-ROMs and 100 no. of Floppy Disks in its collection. The users of both the two libraries are very much familiar with the electronic documents. They are using the electronic documents frequently. So, the electronic documents are gaining importance day by day among the users of the management libraries.

Table – 4

6.04. Distribution of Staff(s) in the Management Institute Libraries

Name of the Institute	Staff		
	Professional	**Non-Professional**	**Total**
Indian Institute of Management (IIM), Calcutta	10	9	19
Indian Institute of Social Welfare and Business Management (IISWBM), Calcutta	2	9	11

After analyzing the above table, we can say that, there are 10 no. of professional staffs and 9 no. of non-professional staffs in the library of the Indian Institute of Management (IIM), Calcutta. On the other hand, there are 2 no. of professional staffs and 9 no. of non-professional staffs in the library of the Indian Institute of Social Welfare and Business Management (IISWBM), Calcutta. We can also say that, there are total 19 no. of staffs in the library of the Indian Institute of Management (IIM), Calcutta and 11 no. of staffs in the library of the Indian Institute of Social Welfare and Business Management (IISWBM), Calcutta.

Table – 5

6.05. Distribution of Services Rendered by the Management Institute Libraries. Contd…

Name of the Institute	Circulation of Documents	Photocopying Services	Audio-Visual Services	Instructions for using the Library
Indian Institute of Management (IIM), Calcutta	Yes	Yes	Yes	Yes
Indian Institute of Social Welfare and Business Management (IISWBM), Calcutta	Yes	Yes	Yes	Yes

Distribution of Services Rendered by the Management Institute Libraries

Name of the Institute	Library Bulletins	CAS (Current Awareness Services	SDI (Selective Dissemination of Information)	Internet Services	Bibliographic Services
Indian Institute of Management (IIM), Calcutta	Yes	Yes	Yes	Yes	Yes
Indian Institute of Social Welfare and Business Management (IISWBM), Calcutta	Yes	Yes	Yes	Yes	Yes

The above table shows that the library of the Indian Institute of Management (IIM), Calcutta provides all the services to its users. These services are as follows:- Circulation of Documents; Photocopying Services; Audio-Visual Services; Library Bulletin Services; Current Awareness Services (CAS); Selective Dissemination of Information Services (SDI); Internet Services; Bibliographic Services; and Instructions for using the Library Services. On the other hand, the library of the Indian Institute of Social Welfare and Business Management (IISWBM), Calcutta provides all the services like Circulation of Documents; Photocopying Services; Audio-Visual Services; Library Bulletin Services; Current Awareness Services (CAS); Selective Dissemination of Information Services (SDI); Internet Services; Bibliographic Services; and Instructions for using the Library Services etc.

Table – 6

6.06. Distribution of Library Hours of the Management Institute Libraries

Name of the Institute	Library Hours	
	Weekdays	Holidays
Indian Institute of Management (IIM), Calcutta	From 9.30 am (morning) to 1.00 am (midnight)	From 10.00 am (morning) to 1.00 am (midnight)
Indian Institute of Social Welfare and Business Management (IISWBM), Calcutta	From 9.00 am to 9.30 pm	Closed (Saturday, Sunday and other Holidays)

From the above table it is clear that, the library timing of the Indian Institute of Management (IIM), Calcutta is from 9.30 am (morning) to 1.00 am (midnight) in the weekdays and from 10.00 am (morning) to 1.00 am (midnight) in the holidays. On the other hand, the library timing of the Indian Institute of Social Welfare and Business Management (IISWBM), Calcutta is from 9.00 am to 9.30 pm and the library is fully closed on Saturdays, Sundays and other holidays.

Table – 7

6.07. Distribution of Floor Space and Reading Seats of the Management Institute Libraries.

Name of the Institute	Floor Space (in Sq. Ft.)	No. of Reading Seats
Indian Institute of Management (IIM), Calcutta	30,000	150
Indian Institute of Social Welfare and Business Management (IISWBM), Calcutta	5,000	75

After analyzing the above table we can say that the floor space of the library of the Indian Institute of Management (IIM), Calcutta is 30,000 square ft. and there are 150 no. of reading seats in the library of the Indian Institute of Management (IIM), Calcutta. On the other hand, the floor space of the library of the Indian Institute of Social Welfare and Business Management (IISWBM), Calcutta is 5,000 square ft. and there are 75 no. of reading seats in the library of the Indian Institute of Social Welfare and Business Management (IISWBM), Calcutta.

Table – 8

6.08. Distribution of Processing of Documents followed by the Management Institute Libraries. Contd…

Name of the Institute	Accessing	Classification System	Cataloguing Manual	Cataloguing Computerised (OPAC)	Indexing	Bill Processing
Indian Institute of Management (IIM), Calcutta	Yes	Yes DDC**	AACR2R	Yes	Yes	Yes
Indian Institute of Social Welfare and Business Management (IISWBM), Calcutta	Yes	Yes DDC**	AACR2R	Yes	Yes	Yes

Distribution of Services Rendered by the Management Institute Libraries

Name of the Institute	Stamping	Tagging	Labaelling	Data Entering into the Computer	Shelving of the Documents	Maintaining the Authority File
Indian Institute of Management (IIM), Calcutta	Yes	Yes	Yes	Yes	Yes	Yes
Indian Institute of Social Welfare and Business Management (IISWBM), Calcutta	Yes	Yes	Yes	Yes	Yes	Yes

The above table shows that the library of the Indian Institute of Management (IIM), Calcutta follows the systems (i.e. steps) of processing of documents like accessioning, classifying of the documents through Dewey Decimal Classification (DDC) scheme; cataloguing of documents through AACR2R; Indexing; Bill Processing; Stamping; Tagging; Labeling; Entering the data into the computer for availability of data through OPAC (Online Public Access Catalogue); Shelving of the documents and maintaining the authority file.

On the other hand, the library of the Indian Institute of Social Welfare and Business Management (IISWBM), Calcutta follows the steps for processing of the documents like accessioning, classifying of the documents through Dewey Decimal Classification (DDC) scheme; cataloguing of documents through AACR2R; Indexing; Bill Processing; Stamping; Tagging; Labeling; Entering the data into the computer for availability of data through OPAC (Online Public Access Catalogue); Shelving of the documents and maintaining the authority file.

Table – 9

6.09. Distribution of Circulation Procedure of the Management Institute Libraries.

Name of the Institute	Circulation Procedure			
	Open Access/ Closed Access	Charging System	Reminder for Overdue Books	Fine Charged for Delay in Returning of Documents
Indian Institute of Management (IIM), Calcutta	Open Access	Computerised	Yes	Yes
Indian Institute of Social Welfare and Business Management (IISWBM), Calcutta	Open Access	Computerised	Yes	Yes (Rs. 5/- per day)

From the above table, it is clear that, the library of the Indian Institute of Management (IIM), Calcutta has open access shelves and computerized charging system. The library is sending reminder for over due books to its users regularly and fine is charged for overdue books.

On the other hand, the library of the Indian Institute of Social Welfare and Business Management (IISWBM), Calcutta has open access shelves and computerized charging system. The library is sending reminder for over due books to its users regularly and fine is charged for delay in returning of books.

Table – 10

6.10. Distribution of Internal Services of Management Institute Libraries for Maintenance of Library Stack (i.e. Shelving), Stock Taking, Preservation and Conservation Activities etc.

Name of the Institute	Whether Regular Stack Rectification done or not	Whether Regular Preservation & Conservation Done or not	Whether Regular Stock Verification Done or not	Whether Regular Reminder sent to the Agents Due to Non-Receipt of Journals or not
Indian Institute of Management (IIM), Calcutta	Yes	Yes	Yes	Yes
Indian Institute of Social Welfare and Business Management (IISWBM), Calcutta	Yes	Yes	Yes	Yes

After analyzing the above table, we can say that the library of the Indian Institute of Management (IIM), Calcutta follows the following steps for proper organization and maintenance of documents:-

- Regular Stack Rectification;
- Regular Preservation and Conservation of Library documents;
- Regular Stock Verification;
- Regular reminders for non-receipt of journals to the agents.

On the other hand, the library of the Indian Institute of Social Welfare and Business Management (IISWBM), Calcutta follows the steps for proper organization and maintenance of documents as per the following:-

- Stack rectification regularly;
- Preservation and conservation of library documents regularly;
- Stock verification regularly;
- Sending reminders to the agents for non-receipt of journals.

Table – 11
6.11. Distribution of Library Budget of the Management Institute Libraries

Name of the Institute	Library Budget Allocation
Indian Institute of Management (IIM), Calcutta	Flexible Budget Allocation. (i.e. According to Requirement)
Indian Institute of Social Welfare and Business Management (IISWBM), Calcutta	Flexible Budget Allocation. (i.e. According to Requirement)

The above table shows that both the libraries have no fixed budget allocation. Both the libraries have flexible budget allocation. The library of the Indian Institute of Management (IIM), Calcutta and the Indian Institute of Social Welfare and Business Management (IISWBM), Calcutta are getting funds according to the requirement.

Table – 12
6.12. Computerization of Library Activities of the Management Institute Libraries

Name of the Institute	Computerization of Library Activities
Indian Institute of Management (IIM), Calcutta	Fully automated library with LIBSYS Software
Indian Institute of Social Welfare and Business Management (IISWBM), Calcutta	Fully Computerized library with the software designed by the Institute of its own

From the above table it is clear that the library of the Indian Institute of Management (IIM), Calcutta is a fully automated library with LIBSYS Software. On the other hand, the library of the Indian Institute of Social Welfare and Business Management (IISWBM), Calcutta is a fully computerized library with the software designed by the institute of its own.

7. **Conclusion** (Including Suggestions and Recommendations):-

From this study we can conclude that there are huge quantities of information resources in the libraries of the management institutes. The following services are generated by the management institute libraries:-

i) Circulation of Documents.
ii) Photocopying services.
iii) Audio-Visual Services.
iv) Instructions for using the library services.
v) Library Bulletin Services.
vi) Current Awareness Services. (CAS)

vii) Selective Dissemination of Information (SDI) Services.
viii) Internet Services.
ix) Bibliographic Services.
x) Full utilization of Library Resources.

The following services should be implemented by the management institute libraries:-

a) Application of modern technologies more and more [i.e. RFID Technology (Radio Frequency Identification); Multimedia; Laser Printer; Page Scanner etc.]
b) Much more employment of Library and Information Professionals for smooth functioning of libraries and satisfactory library services to their users.
c) Organizing short term courses for the library and information professionals.
d) Conducting Book fairs at least once in a year.
e) Preparation of Union Catalogue of the management libraries.
f) Last but not the least, conducting orientation programme for the users.

Library resource sharing is a basic need for all the libraries now-a-days. Without resource sharing we cannot step forward. Sharing of library resources is possible in many ways like acquisition, processing, abstracting, indexing, translation etc.

Much more concentration should be given to the following areas of library management:-

- Environmental Management (i.e. Library Ecology).
- Financial Management.
- Human Resource Management.
- Time Management.
- Space Management.
- Management of procurement of library documents.

The library professionals must acquire academic and professional qualities. He/ She should acquire IT related knowledge and skill and some personal qualities for providing good quality library services to its users.

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iii) Sri Chanchal Paul, Assistant Librarian, IIM, Kolkata.

iv) Sri Ananta Dey, Assistant Librarian, IIM, Kolkata.
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Bibliometric Study of the Contributions on Library and Information Science Published in the University News

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The term bibliometrics was first used by Alan Pritchard in his article '*Statistical bibliography or Bibliometrics*' in 1969. It is a tool, traditionally used by the Library and information science professionals for studying the communication process, information flows, better understanding, effective management and dissemination of information. It utilizes quantitative analysis and statistics to describe the pattern of publication within a field of literature. According to the *British Standard Glossary of Documentation Terms*, 'Bibliometrics is the study of the use of documents and pattern of publication in which mathematical and statistical methods have been applied'.

Source Journal

University News has been selected as the source journal for the present study. It is a weekly journal of higher education published by the Association of Indian Universities. It is an important Indian journal used around the globe as authentic source of information about the Indian higher education. It often contains articles that provide current, national and global thinking about the different field of education. It is also a valuable source of information of other different subject field like sports, environment, library and information science etc.. The journal also includes Campus News, Convocation Address, Book review, Theses of the Month, Calendar of Events, Admission Notifications, Classified Advertisements etc.

There are several studies by different authors analyzing the contributions of different journals of various subject fields. Egghe[1], Nattar[2], Rajendiran and Parihar[3], Verma, Tamrakar and Sharma[4], Vijay and Raghavan[5], Vijayakumar

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and Nagarajan[6] have studied the contributions of different journals related to Library and Information Science, Food Science, physics and other different aspects of Science and Technology. The present study is related to analysis of the contributions on Library and Information Science published in the journal University News.

Objectives

The objectives of this bibliometric study are to determine the following attributes by analyzing the contributions on the subject Library and Information Science (LIS) published in the journal 'University News'.

- To examine and study the volume wise distribution of the contributions.
- To examine the authorship pattern, institution wise, geographical and length wise distribution of the contributions.
- To examine the subject wise distribution of contributions.
- To examine the number of contributions with and without citations.
- To study the types of documents cited in the contributions.
- To prepare the ranked list of the journals cited in the contributions.

Scope

An attempt has been made to analyze the contributions on LIS in 263 issues covering 43 articles on Library and Information Science published in the 5 (Vol. 44 – 48) volumes from the year 2006 to 2010.

Methodology

The data have been collected from the library of Sukanta Mahavidyalaya, Saha Institute of Nuclear Physics and Central Library, University of Calcutta. Information regarding the contributions such as author, author's affiliation, length of the contributions, types of citations, geographical location, subject etc. have been collected, scanned, checked and carefully examined. All the collected data have been tabulated and analyzed to satisfy the objective of the study.

Analysis

Table 1: Year and Volume wise Distribution of contributions.

Year	Vol. No.	No. of Issues	No. of Contributions	% age	No. of Contributors	% age
2006	44	1- 52	9	20.93	12	17.65
2007	45	1- 53	4	9.3	8	11.76
2008	46	1- 52	8	18.6	15	22.06
2009	47	1- 52	10	23.26	15	22.06
2010	48	1- 52	12	27.91	18	26.47
Total	5	263	43	100	68	100

Table 1 gives the detail information regarding the year and volume wise distribution of the contributions on LIS. A total of 43 contributions by 68 contributors have been published in the five years and these five years contains 263 issues. It is inferred from the above table, that from the year 2008 to 2010 the percentage of contributions follows the increasing trend and one of the notable attribute is that out of the total contributions maximum number of articles have been published in the year 2010 i.e. 12 and minimum number of article have been published in the year 2007 i.e. 8.

Table 2: Authorship Pattern of the contributions.

No. of Author(s)	No. of Contributions	%age
One Author	23	53.49
Two Author	15	34.89
Three Author	5	11.62
Total	43	100

Table 2 gives the details about the authorship pattern of the contributions. 23 (53.49%) contribution out of the total 43 have been contributed by the single author, 15 (34.89%) articles have been contributed by the two authors, and 5 (11.62%) articles have been contributed by the three authors.

Table 3: Volume wise Distribution of Authorship pattern of the Contributions.

Vol. No.	One Author	%age	Two Author	%age	Three Author	%age
44	6	26.09	3	20		
45	1	4.35	2	13.33	1	20
46	4	17.39	1	6.67	3	60
47	5	21.74	5	33.33	-	-
48	7	30.43	4	26.67	1	20
Total	23	100	15	100	5	100

Table 3 shows the volume wise distribution of the authorship pattern of the contributions. It indicates that out of 23 single author contributions, volume number 48 has the highest number i.e. 7 (30.43%) and volume number 45 has the lowest number i.e. 1 (4.35%) contributions. Out of 15 two author contributions, volume number 47 has the highest numbers i.e. 5 (33.33%) and volume number 46 has the lowest numbers i.e. 1 (6.67%) contributions. Out of 5 contributions made by three authors, the volume number 46 has the highest i.e. 3 (60%) and volume numbers 44 and 47 have no contribution by three authors.

Table 4: Distribution of Author's Affiliation (Volume Wise).

Vol. No	Faculty members	University Librarian/ Deputy Librarian/ Librarian/ Asst. Librarian	Director/Information Scientist/ Documentation Officer/ Library Officer	Library Assistant	Trainee/ Students/ Researchers	Others	Total
44	1	4	3	2	1	1	12
45	2	4	1	-	1	-	8
46	1	8	1	1	-	4	15
47	1	9	1	1	1	2	15
48	3	10	1	-	3	1	18
Total & %	8 (11.76%)	35 (51.47%)	7 (10 29%)	4 (5.88%)	6 (8.8%)	8 (11 76%)	68 (100%)

The above table 4 shows that, 8 (11.76%) faculty members of the universities and the colleges, 35 (51.47%) librarians of different universities, colleges and other institutions, 4 (5.88%) library assistants, 6 (8.8%) trainee, students and research scholars in the field of LIS and the rest 8 contributors other than library professionals like, VC, PRO, Counselor, Managers etc. have been contributed in collaborative manner with the library professionals.

Table 5: Institution wise Distribution of the Contributions (Volume Wise).

Vol. No.	University	College	Management Institute/Research institute	Autonomous Institution/ Other Institute	Total
44	2	7	1	2	12
45	4	3	-	1	8
46	14	-	-	1	15
47	7	3	2	3	15
48	11	3	-	4	18
Total & %	38 (55.88%)	16 (23.53%)	3 (4.41%)	11 (16.18%)	68 (100%)

Table 5 depicts the information regarding the contributor's institution. Out of the 68 contributors, 38 (55.88%) are from different universities, 16 (23.53%) contributors are from different colleges, 3 (4.41%) contributors are from management and research institutions and 11(16.18%) contributors are from different autonomous institutions, like NCERT, SCERT etc and other institute.

The above table gives information that most of the published contributions have been contributed by the authors of different universities.

Table 6: Geographical Distribution of the Contributions (Volume wise).

States	Vol. 44	Vol. 45	Vol. 46	Vol. 47	Vol. 48	Total	%age
Tamil Nadu	-	3	7	2	6	18	26.47
Delhi	2	-	1	2	6	11	16.18
Andhra Pradesh	-	-	-	6	-	6	8.83
Kerala	1	4	-	-	-	5	7.36
West Bengal	3	-	1	-	-	4	5.88
Maharashtra	2	1	-	1	-	4	5.88
Uttar Pradesh	-	-	-	1	2	3	4.41
Jharkhand	-	-	3	-	-	3	4.41
Madhya Pradesh	-	-	-	1	2	3	4.41
Gujarat	2	-	-	-	-	2	2.94
Rajasthan	1	-	1	-		2	2.94
Uttarakhand	-	-	-	-	2	2	2.94
Jammu & Kashmir	-	-	1	1	-	2	2.94
Punjab	1	-	-	-	-	1	1.47
Haryana	-	-	1	-	-	1	1.47
Orissa	-	-	-	1	-	1	1.47
Total	12	8	15	15	18	68	100

The above Table 6 explains that, articles on LIS published in the journal 'University News' have been contributed from the authors of sixteen states of our country. State wise breakup of the contributors reveals that, Tamil Nadu topped the list with 18 (26.47%) contributors followed by Delhi with 11 (16.18%), Andhra Pradesh with 6 (8.83%), Kerala with 5 (7.36%) and single contribution have been came from the three States, Punjab, Haryana and Orissa respectively.

Table 7: Distributions of Contribution according to the Page Length (Volume Wise).

No. of Pages	Vol. 44	Vol. 45	Vol. 46	Vol. 47	Vol. 48	Total	%age
1 - 3	2	4	-	-	3	9	20.93
4 - 6	5	-	6	5	4	20	46.52
7 - 9	2	-	-	2	2	6	13.95
10 - 12	-	-	1	2	3	6	13.95
13 - 15	-	-	1	1	-	2	4.65
Total	9	4	8	10	12	43	100

Table 7 indicates the details about the page length of the contributions. Out of the total 43 contribution, 9 (20.93%) have been completed within the page length of 1 to 3, while 20 (46.52%) articles have the page length of 4 to 6, 6 (13.95%) articles have been completed within 7 to 9 pages and 10 to 12 respectively, only 2 (4.65%) articles have been restricted by the page length of 13 to 15.

So from the above discussion it can be said that most of the contribution i.e. 20 have been published within the page length of 4 to 6 in the journal.

Table 8: Volume wise Distribution of the Subject of the Contributions.

Subjects	2006	2007	2008	2009	2010	Total	%age
Library Network & Consortium	2	2	1	2	1	8	18.60
LIS Education & Profession	2	-	1	1	1	5	11.63
Library Automation	2	-	1	-	1	4	9.31
Electronic Information Resources	-	-	-	2	2	4	9.31
Bibliometric/Scientometric Study	-	-	2	2	-	4	9.31
Electronic Information Services	-	-	1	1	1	3	6.99
Library & Information Society	1		1	1	-	3	6.99
Digital Preservation	1	-	-	-	1	2	4.65
Library Management	-	-	-	-	2	2	4.65
Information Society	-	-	-	-	1	1	2.32
Information Sources & Services	-	-	-	-	1	1	2.32

Marketing of Information	-	-	-	1	-	1	2.32
Library services	-	1	-	-	-	1	2.32
Public library	-	-	1	-	-	1	2.32
Status of Librarian	-	-	-	-	1	1	2.32
Information Storage & Retrieval	1	-	-	-	-	1	2.32
Open Access Initiative	-	1	-	-	-	1	2.32
Total	9	4	8	10	12	43	18.56

The above table shows that articles have been published on various aspects of LIS, it covers seventeen (17) sub –field of the subject. With 8 contributions among the 43, published on library networks & consortium occupies the first position, followed by the 5 contributions on LIS education and profession, and 4 contributions each on library automation, electronic information resources and bibliomercic/ scientrometric study, 3 contributions each on electronic information services and library and information society, 2 contributions each on digital preservation and library management and 8 contributions on eight different subject field of LIS.

Table 9: Distributions of Contributions With and Without Citations (Volume Wise).

Vol. No.	No. of Contributions	No. of Contributions With Citations	No. of Contributions Without Citations	Number of Citations	% age
44	9	4	5	31	7.38
45	4	4	-	47	11.19
46	8	8	-	75	17.86
47	10	10	-	110	26.19
48	12	11	1	157	37.38
Total and %	43 (100%)	37 (86.04%)	6 (13.96%)	420	100

Table 9 depicts information regarding the contributions with and without citations. From the discussion of the above table, it can be said that out of the 43 contributions, 37 (86.04%) contributions have been published with citations and 6 (13.96%) contributions have been published without citation. As far as total number of citation is concerned, here 420 citations have been used for 43 contributions. Maximum 157 (37.38%) citations have been used in volume number 48 and 31 (7.38%), which is the minimum number of citations, used in the volume number 44.

Table 10: Distribution of Types of Publications Cited (Volume Wise).

Types of Publications	Vol. 44	Vol. 45	Vol. 46	Vol. 47	Vol. 48	Total	%age
Websites	15	8	33	30	49	135	32.14
Journal	9	30	5	35	17	96	22.86
Books	3	3	18	24	41	89	21.19
Miscellaneous(Handbook/ Yearbook/ Manual/ Review/ Letter/ Speech)	-	1	1	3	27	32	7.62
Seminar/ Conference/Workshop	4	1	7	9	9	30	7.14
Newspaper/ Newsletter/ Magazine	-	-	8	7	5	20	4.76
Report(Govt./ Project/ Commission/ Committee)	-	4	3	1	9	17	4.05
Thesis/Dissertation	-	-	-	1	-	1	0.24
Total	31	47	75	110	157	420	100

Different kinds of publications have been used by the researchers in their course of work. These documents may in the form of books, journals or other types of literature like online resources, conference proceedings, reports, newspapers and other documents.

Table 10 shows that out of the total 420, 135 (32.14%) citations have been based on the online resources followed by the journal publications 96 (22.86%), books 89 (21.19%), miscellaneous documents 32 (7.14%), seminar/ conference paper 30 (7.14%), newspaper, newsletter, magazine 20 (4.76%), 17 (4.05%) reports and only 1 (0.24%) thesis/ dissertations. Based on the above discussion it can be said that online resources have been consulted as maximum reference by the researchers of LIS.

Table 11: Distribution of Rank List of Cited Journal Titles.

Rank	Title of the Journal	No. of Citation	%age	Cumulative	%age
1	University News	13	13.54	13	13.54
2	Annals of Library & Information Studies	7	7.3	20	20.84
3	IASLIC Bulletin	5	5.21	25	26.05
4	Campus Wide Information System (Int.)	4	4.17	29	30.22
4	SRELS Journals of Information Management	4	4.17	33	34.39
5	ILA Bulletin	3	3.13	36	37.52
5	Library Trends	3	3.13	39	40.65
5	Scientometrics	3	3.13	42	43.78
6	Aslib Proceeding	2	2.08	44	45.86
6	Intellectual Property Rights (IPR) Bulletin	2	2.08	46	47.94
6	Journal of Academic Libraries	2	2.08	48	50.02
6	Journal of Electronic Publishing	2	2.08	50	52.1
6	Library Journal	2	2.08	52	54.18
6	Library Review	2	2.08	54	56.08
6	Journalism & Mass Communication Quarterly	2	2.08	56	58.34
6	Pearl: a journal of Library and Information Science	2	2.08	58	60.42
7	38 Title with one (1) citation each	38	39.58	96	100
	Total	96	100	96	100

Ranked list of the journals shows the maximum used journal titles by the authors/ researchers. In the above table 16 journal titles arranged according to their ranks. According to the above ranked list, *University news* occupied first rank with 13 (13.54) citations out of 96 journal citations, second ranked occupied by the *Annals of library and information Studies* with 7 (7.3%) citations and this is followed by the *IASLIC Bulletin with* 5(5.21%) citations.

Findings

From the observation of this study the following points are inferred.

1. Maximum numbers of articles on LIS have been published in the volume number 48 in the year 2010.
2. The authorship pattern of the articles shows that maximum numbers of researchers tend to write individually and minimum numbers of researchers like to produce collaborative work.
3. It is inferred from the analysis of the author's affiliation that maximum numbers of articles have been contributed by the librarians of different universities, colleges and other institutions.
4. Most of the contributions among the total 43 have been contributed by the authors of the universities.
5. Geographical analysis reveals that majority of the contributions have been came from the state Tamil Nadu.
6. Average page lengths of the most of the contributions have been within the 4 to 6 pages.
7. The Subject wise break up shows that highest numbers of articles have been published on library networks & consortium and total contributions on LIS cover seventeen (17) aspect of the subject.
8. Analysis reveals that maximum contributions have been published with citations and only few contributions have been published without any citations.
9. Analysis of the types of cited documents reveals that websites have been referred by the maximum authors. Journal articles and books have been scored second and third positions respectively.
10. Articles published in the University News have been consulted or cited maximum by the contributors.

Conclusion

University News, which is nascent source of information regarding the higher education of India, also provides a great opportunity to the researchers to publish their articles with current information, new strategies, new methods and thoughts of other different subject fields also. Though the journal is popular as a journal of education, but the study reveals that it is also an important source of current information on the different aspects of LIS. The study shows that maximum numbers of contributions on LIS have been published in the last year 2010 and the journal also seems to be popular among the researchers of the universities as maximum numbers of contributions have been received by them. University News provides valuable information012 about our education system, we know that library plays an important role in higher education so we can conclude with the hope that we will get more articles on LIS in future through this journal and it will be a valuable source of information to our professional friends.

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Electronic Theses and Dissertations: A Requirement of Indian University Libraries

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ABSTRACT

Eminence of a university education stands on many factors; out of them having an updated modern library system is one of the best prerequisites. Electronic thesis and dissertations is one of the most important collections, developed by the library systems, most welcomed by the students, researchers and teachers in and around the academic orientation and cultivation field of the amplification of research and higher learning.

• Introduction

ETDs are actually a collection of submitted and awarded theses and dissertations in a university library system where the document is uploaded electronically/digitally for further access. Actually it is the benefit and relief over the traditional system of repository for access of physical documents. Digital library use of ETDs offers a definite and confirmed alternative to that.

Dissertations and Theses are known as prosperous and distinctive source of information, often the only source for research work that does not find its way into a collection of publication channels. Doctoral dissertations are expression of result of four to five years or more of intense work of a scholar connecting huge investment of possessions, mental, physical, infrastructural and other prop up from the universities. A thesis reflects class of research work conducted by a scholar and the ability of an institution to conform an original work of research in a prearranged discipline.

• Importance of ETDs

Electronic modes of diffusion include initiatives taken by Ph.D. graduates to publish their theses on personal websites, electronic archives set up by institutions and broader initiatives that allow international users to deposit their theses, and to search for theses written by students worldwide (NETWORKED DIGITAL LIBRARY OF THESES AND DISSERTATIONS – NDLTD, 2005).

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[1] Lecturer

The basic reason of creating theses is to provide a new knowledge in erudition, which will be of a permanent assessment to the learner in appreciation how new knowledge is acquired and communicated within the preferred field. These works contain valuable content, including focused writing style reviews and facts on making enquiries, which are not generally made available from elsewhere sources of information.

At present in Indian environment theses publications are mounting. Organization and their admittance of theses information in India, and some attempts those are budding to address the needful target groups have special reasons. In points it could written as ------

- ✓ Scholarly publishing in an electronic format
- ✓ Ability to see and understand how a Ph.D. thesis should be
- ✓ Extensive disclosure of university research for superb user-friendliness
- ✓ Opportunities to use new forms of ingenious learning
- ✓ Ability to have a hyperlink to the thesis/dissertation on homepages and electronic CVs, multimedia, hyperlinks, etc
- ✓ Skilled development of experience for research scholars as they learn the basic technological know-how of saving of paper
- ✓ Theses and dissertations are more immediately accessible: publication occurs very recent of submission rather than three to four months delay; and
- ✓ The option to have theses or dissertations accessible to any potential reader every day at any time.

• ETDs in Indian Environment

Indian scholars and scientists produce a large number of theses and dissertations per year(8000-10000) which gets different libraries to stay, this is a situation, where if students of one region want to refer such thing are unable to, because of the hindrance like remoteness, system and access

• UGC and ETDs

With the advent of ICT, technology use has become a leading force in the present-day learning systems in India; University Grant Commission(UGC) has launched several such programmes to enhance and augment this issue, a striving programme to bring about a qualitative change in the academic infrastructure, more than ever for higher learning. Under this initiative UGC is modernizing the University Campuses with State-of-the-art college/university grounds wide

networks and setting up its own nationwide communication network named UGC-Infonet. UGC-Infonet will be proving a gain to the advanced teaching/learning systems in several ways of facilitates spread of superiority in education throughout the country. Through this facility e-journals and documents will reach to the remotest of areas and a number of resource centers for researchers and scholars for exhaustive use of the most up-to-date information.
UGC Infonet has set up large server with a main feature of a data center with capacity where content of common interest can be maintained. Each University will have the option of hosting their website, digital content like ETDs and the E-journals subscribed through INFLIBNET Consortia.

- **History and Development of ETDs**

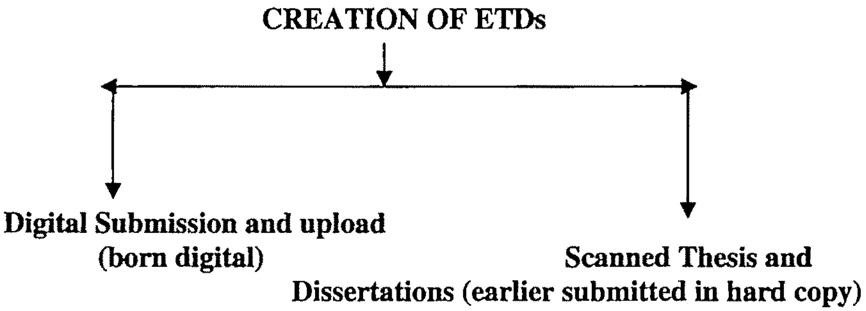
ETDs project was first started in United States in 1987(Fox,et.al.1999). Verginia Tech University felt the need of submission of ETDs in 1997(Seasmans, 2003).In 1990 Adobe's Portable Document Format (PDF) was made available. To submit ETDs there is a need of PDF format of .pdf file. Near about to this time in India, a great support from Government of India could initiate the Digital Library system in 1990.Out of that INFLIBNET began the work in creating Digital Library of ETDs with the databases of Ph.D. theses. A number of institutions worked together to create an Indian ETD library, including IISC, Bangalore, IIT Delhi New Delhi, Indira Gandhi Institute of Development Research, Mumbai, and Sri Venkateswar University, Tirupati. Another project is Vidyanidhi, which has the largest number of ETDs in India now it began as a leading project in 2000 at the University of Mysore Department of Library and Information Science, sponsored by National Information System for Science and Technology, Government of India.

- **Traditional Thesis/dissertations and up to dated ETDs**

The traditional physical submission of theses and dissertations refers towards system of the university libraries where a submission stays for ages and the citation used to be bound to place, time and other access conditions. This process practically almost called no use condition of scholars life time work. Benefits from the primary source were remote. Beside scientific achievements were remained unread, only way to popularize is to publish such into book form in hard copy. In contrast to that in present-day conditions the central libraries of the universities on the other half of the globe establish e-facilities specific to the use of password and IP to limit access to their work within their own campuses. But in a recent survey of journal editors and publishers, however, 83 percent said that an online thesis or dissertation widely available through a Web-based archive would not be considered prior publication according to their journals' existing policies. Typically, students must significantly revise their academic work, particularly the detailed account of their results, to accommodate the differences between academic and commercial publishing. If hiring, tenure, and promotion committees value readership, citations, and influence on the field, then they should prize a frequently accessed and cited thesis or dissertation. Admittedly, the traditional five-chapter dissertation took time to develop from the model of the first dissertation submitted in America — a six-page, handwritten thesis at Yale University in 1860.

We can't expect major institutions in Indian environment to reinvent them overnight. Theses and dissertations are esteemed scholastic genres, and these must be carefully indexed and analyzed. An author's ETD has smaller, more manageable file sizes and can include full text, working hyperlinks, navigational tools, and metadata (the data about data) that facilitates searching the document. Thus, in places that don't yet require ETDs, master's theses are likely to become obscure beds for dust dirt and dejectedly left idle.

Here are two processes for ETD development------


CREATION OF ETDs
Digital Submission and upload (born digital)
Scanned Thesis and Dissertations (earlier submitted in hard copy)

- **Submission process**

PDF stands for Portable Document Format; Adobe Systems developed the PDF standard and provides the primary package for creating and manipulating PDF files, in Adobe Acrobat. The conversion process from soft copy to PDF takes normally that would send to a specific printer and prepares them to be viewed as previews or printed on any computer with the free Acrobat Reader installed.[1] Postscript is a standard language developed by Adobe Systems, which is used to send instructions to postscript compatible printers. These simple instructions portray the contents of all text and graphics to be printed, and where on the page how each piece of content is to be printed. Instructions are send to a postscript printer, which interprets them, creates a printed copy based on these commands; afterwards the instructions are not required. Other file types for image files can be

.gif, .jpeg, or .tif; for video files .mov, .mpg, or .avi; and for audio files .aif, .midi, .snd, .wav, or as CD-DA, CD-ROM/XA, or MPEG-2 (Vijayakumar, Murthy and Khan,2004).

- **Requirements for e-submission**

Researchers need to create their original thesis using a word processor(Microsoft word or WordPerfect), or and once it is done, then it can be converted to a PDF file format, which will maintain the original Electronic Theses /Dissertations document file. It can be edited further and redeveloped also in the future some time. Conversion into a PDF file is a basic way for such direction. Libraries who are doing digital achieving and computers labs have to be prepared with Windows based computers. This is a basic requisite to the set up to convert any thesis and dissertation written in Microsoft Word to Adobe Acrobat (.pdf) format. This process will lead to change the word processing document to PDF format and will also create bookmarks. It should be taken care that those conversion machines are not internet connected. Library needs a liaison with each and every department under the university system to have compulsion on such activity and process formulation. Researchers have to submit their documents on disk/CD/Zip folders. Technicians /Information officers / in the library needs to make ready assistance available with using the software to convert files after submission and award.

- **Software Required to administer ETDs**

D-Space is a revolutionary digital library harmonization that captures, supplies, indexes, conserves and redistributes the academic output of a university's research talent in digital formats. This has brought the immense horizon towards the freedom of learners to access the ultimate product of any higher learning contents. The prospect of Etheses/ dissertations of archiving and retrieving in normal conditions depend on university libraries / institutions being able to convey pinnacle excellence services, with a high degree of interoperability. Parallel to that among other things, systems must continue to develop and they must be able to handle many different types of digital items. Open source software like DSpace can fulfill these requirements to a higher degree and will continue to improve in this way in the future [Jones, 2004]. As an open source system, DSpace is now freely available to other institutions to run as it is, or to modify and extend as they require meeting local needs. HP and MIT collaboratively premeditated the system to be run by institutions other than MIT, and to support alliance among its adopters, in both the technical and the social sense. INFLIBNET objective is to lead the charge for a realistic assessment of how they can shepherd use of such academic resources. Awareness building in

Open Archives and Institutional Repositories in Indian academic Institutions will be the main objective of INFLIBNET in near future. For long-term preservation of knowledge base growth and academic cultures, it is needed to find out an economical and delightful way to save digital content for future generation learners of Indian society. In India, a number of institutions have started to use variety of open source archiving solutions like Green Stone, E-Print, DSpace and like since year 2000. Initially there were some experiments through all these popular solutions, INFLIBNET has opted for DSpace for its Institutional Repository and archive its publications, seminars, conferences, proceedings, lecture notes. Dspace has capability to handle multilingual content, at Metadata level integrating internationally accepted UNICODE standard. Especially a country like India with its mullti-lingual predicament in digital content formation and storage, this was the important question for selecting this solution software (http://inflibnet.ac.in).

INFLIBNET has downloaded Dspace directly from http://dspace.org/. It has been installed in test-bed and experiment base, for its potential and presentation area. After all possible ways of tests required, Dspace is tailored according to the necessities and it was installed on one of the WWW(world wide web) Server on Linux platform (RedHat 9). Then it has been requested for Corporation for National Research Initiatives (CNRI) site for providing persistent identifiers (CNRI Handles) which promotes interoperability among open archives through Open Archives Initiative Protocol for Metadata Harvesting (OAI-PMH). The Handle System covers assignment, management, and resolution of these persistent identifiers and is agreeable with the IETF's(Internet Engineering Task Force)Uniform Resource Name (URN) specification. The customized Dspace Archive is reachable through Web at http:/ /dspace.inflibnet.ac.in.

- **Role of the faculty, department review process and the central library**

A submitted thesis is an intellectual output of a scholar's brain beside the responsible guidelines are there from the respective supervisor/s, co-supervisor/s and a number of academic helpers in creating one thesis after a tedious completion of the research work.

Faculty continues to be accountable for perpetuation of the quality of the thesis / dissertation, whether that thesis or dissertation is submitted using electronic formats or in hardcopy that is the predetermined agenda of these total work functionality. The electronic format can facilitate statement among members of the dissertation committee and the researcher group. Electronic distribution of drafts allows multiple readers to markup and comment within one copy of the work at a time, regardless of the readers' physical location, and to see others remarks. As in manual submission a process is undertaken before the pre-submission of Ph.D. thesis before the arrangement of public seminars. More than five copies are circulated among the expert committee to get comments on the thesis on seminar day. It simply enhances the quality improvement of every research report. It also allows the student to assemble the comments of all readers and experts within one document. In cases of e-submission some committees may require that students provide all members of the committee with a paper copy of the ETD before the defense; others may elect to read on-screen or to have committee members take individual responsibility for working from screen or paper they print out themselves. Hardcopy of the textual components of an ETD can always be made available to committee members at their request. If non-text elements of the ETD are part of the defense, the committee can judge the most successful way to make sure that all members of the committee have way in to non-text elements during the defense.

After the committee approves thesis or dissertation, it can be sent to final submission and a copy of the same goes to a conscientious individual in the central library for electronic dispensation, who will be responsible for processing ETDs by making sure that the file's formatting and related issues are followed strictly, all the links are operational. Metadata of ETD can be fashioned and made obtainable for penetrating and accessing.

- **Copyright apprehension**

The copyright issue undertakes two major mechanisms, protecting the information/work created as part of the research program; and granting license to University or to any ETD Programme to make the work available for reference and citation.

This use means two folded act deliberation. Primarily if it is institutional then it is of one type and then if it is web supported then it is different. It also allows one user in consideration that includes obtaining permission to use parts/areas of the work that have already been published in other sources. If the material quoted or reproduced does not fall under the general guidelines of "fair use" then it is needed to get written permission from the copyright holders. Since a dissertation or thesis is published for non-profit learning purposes, the person responsible is allowed partial use of copyrighted material under the guidelines of "fair use." The permission from the copyright owner depends on the reason, quantity, nature and effect of the work reproduced and resolved.

Information about copyright issues in general, as well as those related to ETDs can be cited ETD copyright in India at INFLIBNET@dspace and page of University of Pittsburgh at the http://www.pitt.edu/~graduate/etd and in the followed link to copyright is available on the page http://www.library.pitt.edu/research/copyright/, the University Library System's site that includes copyright information, news and resources through its Research Help section. Visit http://www.ndltd.org/cpright/index.htm, a web page urbanized by the Networked Digital Library for Theses and Dissertations this is available from the Chicago Manual of Style.

- **Initiatives from Indian organizations**

After formation of ETDs the major role is to create a comprehensive database on the bibliographic information. A bibliographical tool is used to know about theses of awarded Ph. Ds of Indian universities. Presently the Association of Indian Universities started to publish on Doctoral Bibliographies in all subjects and Theses of the Month column in its weekly publication of University News. This information is classified in subject wise display in alphabetical arrangement. In 1994, INFLIBNET also started to congregate a regularly updated free online union database of Ph D theses submitted to Indian universities time to time. At present it is freely available for searching at INFLIBNET website and contains around 1,40,000 (one lakh forty thousand) of unique bibliographical records covering all subjects and all universities under UGC regulation. A well-known project Shodhganga-INFLIBNET also uses DSpace. The Shodhganga INFLIBNET provides a platform for research students to deposit their Ph.D. theses and make it available to the entire scholarly community in open access. The repository has the ability to capture, index, store, disseminate and preserve ETDs submitted by the researchers. DSpace supports "Open Archives Initiative's Protocol for Metadata Harvesting~ (OAI-PMH) and uses a qualified version of the Dublin Core schema. Many member universities have already set-up their institutional and ETD repositories using either DSpace or other OAI-PMH compliant Institutional Repository software leading to a state of affairs. The UGC vide its Notification (Minimum Standards & Procedure for Award of M.Phll./ Ph.D Degree, Regulation, 2009) dated 1,June 2009 provides for submission of electronic version of theses and dissertation in the ETD Repository (called Shodhganga) maintained by the INFLIBNETCentre. Universities that sign the MoU with the INFLIBNET Centre and mandate submission of electronic version of their theses and dissertation to the "Shodhganga" may get financial assistance from the UGC for digitizing their back-files of theses. Besides, UGC may also provide financial support for subscription to software tools that detects plagiarized portion of theses and dissertations (http://ugc.ac.in).

Universities take the responsibilities to submit the data about the awarded thesis list every month from its departments through a central processing to the AIU to forward the database through online service and a database production. Recently University of

Mysore has done a remarkable job in collaboration with NISSAT and Ford Foundation. It has initiated a project called Vidyanidhi to host individual full-text thesis from various universities who are willing to become a member of this project http://www.vidyanidhi.org.in . So far this project tries to evolve as kind of national collection for Indian theses, but it is still could not be made compulsory for Universities to become a part of this project. Some of the major institutions in India are NIC, Vidyanidhi, NCL Pune, Raman Research Institute, IIM Kozikote, IIT Delhi, Tirupati University, IIT Kharagpur, Thapar University, DRTC Bangalore and NIT Rourkela have already made their ETD repositories.

Our all the universities have not made the compulsory digital submission because of less infrastructure and other facilities. All these efforts are, off course, helpful for researchers in locating theses, but in the case of access, still we need remedies.

• Some problems of ETDs venture

At present there are some lacunas in publication, organization and access to theses information in Indian universities. So far many universities have already done the retrospective work of submitted theses database at least on the title page digitization where the title, author, year of submission, name of supervisor, co-guide, subject and name of the university have been catalogued. This is the bibliographic database of theses. Many universities are there who could not conceive them as in "born digital" form or it's yet to bring the policy to get e-submission of theses. Whereas in the western countries, these problems have been already solved long back and such fundamental steps have been taken as attempts to provide the full text services.

• Conclusion

Electronic submission of theses is required to be undertaken by all the university libraries of India as soon as possible to create the full text access and bibliographic database information for wider use of theses and dissertations by the scholastic surroundings.

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Use of internet by the PG students in the Calcutta University Central Library.

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Abstract

A questionnaire-based survey was conducted to examine_use of internet by the master degree students at Calcutta University Central Library (CUCL). It highlights the reasons for using internet and its frequency of use, time spent by the students for net surfing, expected time to satisfy their information need, the purpose of internet use and co-operation of library staff with the students when they face any problem regarding surfing the internet. It also highlights the time expectation of internet users to satisfy information need on internet in the CUCL, requirement of internet service on Saturdays and Sundays in the CUCL and satisfaction with the infrastructure facilities available in the CUCL.

Keyword: Internet, University of Calcutta

1. Introduction:

The internet, a collection of interlinked computer networks or a network of networks, enable access to information resources and supports learning and teaching in the academic environment. Over the years, sources of information and other opportunities available via the internet have been increasing exponentially and various programmes have been developed for using internet. Internet acts as a powerful supplement to the traditional way of information access. It facilitates electronic and exchange of ideas and collaboration among the students all over the world.

The survey has been undertaken to access the use of internet by the master degree students of the department of Commerce, Library & Information Science, English language & literature departments.

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2. Objectives of the Study:

The main aim of the survey is to analyze the use of internet service by the master degree students in the Calcutta University Central Library (CUCL). The other major objectives of the survey are:

1. To know the reason for using internet and its frequent of use, time spent for net surfing.
2. To know the ways which make the students aware regarding the information required in their field of interest.
3. To know the way of searching information on the internet, different search engines used by the students.
4. To know the mode of action taken by the students after search failure.
5. To know the influence of internet on academic efficiency.
6. To know the time expectation to satisfy information need on internet in the CUCL
7. To know the requirement of internet service on Saturdays and Sundays in the CUCL
8. To know the satisfaction with the infrastructure facilities available in the CUCL.
9. To know the status of printing facility available in the CUCL.
10. To know the satisfaction with the internet facilities in the CUCL.
11. To identify the different purposes for which the internet is used by the students.
12. To find out problems encountered using internet in the CUCL.
13. To know the co-operation of the CUCL staff with the students, when they face any problem regarding net surfing.

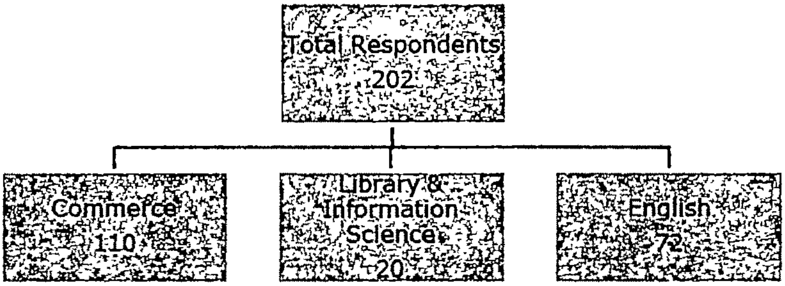
3. Scope & Coverage of the study:

Though the users of the Calcutta University Central Library are a wide group including students, research scholars, staffs and faculties of the various departments of the University.

The study has been carried out by taking a sample of master degree students from Commerce, Library & Information Science, English language & literature departments in the University of Calcutta during the session 2009-2010. A random samples were drawn from the students of above 3 departments in the College Street Campus.

4. Methodology:

The questionnaire method has been used to collect the data for the present study. Random sampling method has been used. Total of 202 representative samples are randomly selected for this survey from the Department of Commerce, Library & Information Science, and English language & literature.



5. Analysis of Data related to general aspect

Table 1 to 8 deal with the data related to the general aspects from the point of view of the respondents.

Table- 1: Gender of Respondents

Gender	No. of respondents		Total
	Male	Female	
Commerce	52	58	110(54.46%)
LIS	12	8	20(9.90%)
English language & literature	33	39	72 (35.64%)
Total	97(48.01%)	105(51.99%)	202 (100%)

Table 1 shows that total number of respondents among the three department is 202. Among them the number of male respondents are 97 i.e. 48.01 % and the female respondents are 105 i.e. 51.99%.

Table-2 : Way of searching information through the internet

Respondents	By type the web address only	Using search engines	Using subscription databases
Commerce	61	94	3
LIS	14	19	7
English language & literature	51	66	13
Total	126(62.37%)	179(88.61%)	23(11.39%)

Table 2 reveals that a majority of the respondents i.e. 179(88.61%) browse the required information from the internet by using internet search engines. 126(62.37%) respondents admit that they type the web address directly for browsing information and only 23(11.39%) respondents indicate that they use subscription databases for getting the required information from the internet.

Table-3 : Favorite search engines

Search Engines	No. of respondents			Total
	Commerce	LIS	English language & literature	
Yahoo	90	17	59	166(82.17%)
Google	105	19	67	191(94.55%)
Hotbot	5	5	18	28(13.86%)
MSN	3	2	11	16(7.92%)
Altavista	14	3	6	23(11.39%)
Rediff	56	13	37	106(52.48%)
Any other	1	0	0	1(0.49%)

Table 3 shows that Google is the most preferred search engine with 191(94.55%) respondents, followed by Yahoo and Rediff with 166(82.17%) and 106(52.48%) respondents respectively. Other search engines are gaining less popular, for example Hotbot with 28(13.86%), Altavista with 23(11.39%), MSN with 16(7.92%) and any other not specified with 1(0.49%) respondents respectively.

Table-5: Methods used for acquiring the internet skills

Methods used	No. of respondents			% of respondents
	Commerce	LIS	English language & literature	
Trial and error method	77	13	44	134(66.34%)
Guidance from friends	71	12	53	136(67.31%)
Training from college	19	3	14	36(17.82%)
Self instruction	52	9	41	102(50.49%)
External courses	12	2	26	40(19.80%)

Table 5 shows that most popular method of acquiring the necessary skills to use internet is via guidance from friends. A majority of respondents i.e. 136(67.31%) use this method. A total of 134(66.34%) of them indicates that they acquire their internet skill by trial and error method, while more than half of the respondents with 102(50.49%) acquire skills by self instruction. 36(17.82%) of respondents learnt the internet through formal training offered by the college and 40(19.80%)respondents acquire internet skills from external courses.

Table-6: Influence of internet on academic efficiency

Influence of Internet	No. of respondents			% of respondents
	Commerce	LIS	English language & literature	
Use of conventional documents decreased	39	9	22	70(34.65%)
Dependency on internet increased	76	14	65	155(76.73%)
Expedited the research process	11	3	24	38(18.81%)
Improved professional competence	33	8	36	77(38.11%)

Table 6 indicates the influence of internet on academic efficiency of the respondents. 155(76.73%) respondents think that dependency on internet has increased. 70(34.65%) respondents think that dependency on conventional documents has decreased. 77(38.11%) respondents feel that the internet has improved their professional competence, 38(18.81%) respondents admit that the internet expedited the research process.

Table-7: Internet use as compared to conventional documents

Internet is used for	No. of respondents			% of respondents
	Commerce	LIS	English language & literature	
Time saving	103	19	65	187(92.57%)
More informative	86	15	53	154(76.23%)
More useful	79	16	58	153(75.74%)
Less expensive	73	14	42	129(63.86%)
More preferred	69	13	49	131(64.85%)

In table 7, 187(92.57%) respondents opine that internet is time saving as compared to conventional documents. A majority of the respondents i.e. 154(76.23%) feel that the internet is more informative as compared to conventional documents. Internet is preferred for being less expensive by the respondents with 129(63.86%). 153(75.74%) respondents feel that internet is more useful than conventional documents. Respondents opt 'internet is preferred'(or more liked) with 131(64.85%) response as compared to conventional documents.

Table-8 : Can internet replace library service?

	No. of respondents			% of respondents
	Commerce	LIS	English language & literature	
Yes	4	0	0	4(1.98%)
No	106	20	72	198(98.02%)
Total	110	20	72	202(100%)

From table no. 8, we have seen that a majority of respondents i.e. 198(98.02%) feel that internet cannot replace library service.

6. Analysis of data related to Central Library:

Data given in the table from 9 to 19 are mainly related to the Central Library of the University of Calcutta

Table -9: Frequency of internet use in the Calcutta University Central Library (CUCL)

	No. of respondents			% of respondents
	Commerce	LIS	English language & literature	
Daily	40	7	26	73(36.13%
2-3 times a week	37	9	35	81(40.09%
2-3 times a	16	4	6	26(12.87%
Once a month	17	0	5	22(10.89%
Total	110(54.46%)	20(9.90%)	72(35.64%)	202(100%)

Table 9 shows that 73(36.13%) respondents use internet in the CUCL everyday, 81(40.09%) use the internet 2-3 times in a week while 26(12.87%) respondents use it 2-3 times in a month and 22(10.89%) respondents use the internet in the CUCL once in a month.

Table-10: Time spent for the internet in the CUCL in a week

	No. of respondents			% of respondents
	Commerce	LIS	English language & literature	
1 hour a week	22	3	9	34(16.83%)
2-4 hours a week	45	10	53	108(53.47%)
5-6 hours a week	10	6	6	22(10.89%)
Rarely	33	1	4	38(18.81%)
Total	110(54.46%)	20(9.90%)	72(35.64%)	202(100%)

Table no. 10 shows that 108(53.47%) respondents use the internet in the CUCL for 2-4 hour a week, 34(16.83%) respondents use the internet for 1 hour a week., 22(10.89%) respondents use internet in the CUCL for 5-6 hours in a week. But 38(18.81%) respondents indicate that they use internet rarely in the CUCL.

Table-11: Expectation of time to satisfy information need on internet in the CUCL

	No. of respondents			% of respondents
	Commerce	LIS	English language & literature	
1 hours/ day	25	1	8	34(16.83%)
2 hours/ day	31	4	34	69(34.16%)
3 hours/ day	0	3	2	5(2.47%)
4 hours/ day	0	2	0	2(0.99%)
No limitation	54	10	28	92(45.54%)
Total	110(54.46%)	20(9.90%)	72(35.64%)	202(100%)

Table no. 11 shows that 92(45.54%) respondents have no limitation of time to satisfy their information need on internet in the CUCL, 69(34.16%) respondents indicate that they expect 2 hours /day to satisfy their need on internet, 2(0.99%) respondents indicate that they expect 4 hours /day, 5(2.47%) respondents indicate that they expect 3 hours /day and 34(16.83%) respondents feel that only 1 hour/day is sufficient to satisfy their information need on internet in the CUCL.

Table-12: Requirement of internet service on Saturday & Sunday in the CUCL

	No. of respondents			% of respondents
	Commerce	LIS	English language & literature	
Yes	96	20	58	174(86.13%)
No	14	0	14	28(13.87%)
Total	110(54.46%)	20(9.90%)	72(35.64%)	202(100%)

Table 12 depicts that, 174(86.13%) respondents require internet facility on Saturdays and Sundays in the CUCL. But only 28(13.87%) respondents said that they do not require internet facility on Saturdays and Sundays in the CUCL.

Table-13: Expectation of time on Saturdays and Sundays to satisfy information need on internet in the CUCL

	No. of respondents			% of respondents
	Commerce	LIS	English language & literature	
1 hours/ day	19	1	25	45(22.28%)
2 hours/ day	19	5	22	46(22.77%)
3 hours/ day	7	3	0	10(4.95%)
4 hours/ day	13	2	0	15(7.43%)
No limitation	38	9	11	58(28.71%)
Total	96	20	58	174(86.13%)

Table no. 13 shows that 174 respondents require internet facility on Saturdays and Sundays. Out of total 174 respondents, 58(28.71%) respondents expect that no limitation of time on Saturdays and Sundays to satisfy their information need on internet, 15(7.43%) respondents said that they expect 4 hours/day, 10(4.95%) respondents require 3 hours/day, 46(22.77%) respondents indicate that they expect 2 hour/day, but 45(22.28%) respondents feel that only 1 hour/day is sufficient to satisfy their information need on internet in the CUCL on Saturdays and Sundays.

Table-14: Status of the computer printing facility available in the CUCL

	No. of respondents			% of respondents
	Commerce	LIS	English language & literature	
Costly	19	2	9	30(14.85%)
Very much useful	31	8	40	79(39.10%)
Not useful	36	2	0	38(18.81%)
Not costly	12	5	10	27(13.37%)
Time lag	12	3	13	28(13.86%)
Total	110(54.46%)	20(9.90%)	72(35.64%)	202(100%)

From table no.14 it is clear that, 38(18.81%) respondents indicate, printing facility available in the CUCL is not useful, 79(39.10%) respondents feel that it is very much useful, 30(14.85%) respondents reported that it is costly, 27(13.37%) indicate it is not costly but 28(13.86%) feel that printing facility in the CUCL is time consuming.

Table-15: Satisfaction with the internet facilities in the CUCL

	No. of respondents			% of respondents
	Commerce	LIS	English language & literature	
Partially	40	8	30	78(38.61%)
Fully	24	6	28	58(28.71%)
Least satisfied	13	0	3	16(7.92%)
No comment	33	6	11	50(24.75%)
Total	110(54.46%)	20(9.90%)	72(35.64%)	202(100%)

Table 15 shows that 78(38.61%) of the respondents were partially satisfied with the internet services, only 58(28.71%) of the respondents were fully satisfied with the services, 16(7.92%) were least satisfied, and 50(24.75%) did not express any view regarding the service

Table-16: Different secondary storage media allowed by CUCL for copying the document from internet in the Central Library

	No. of respondents			% of respondents
	Commerce	LIS	English language & literature	
CD	41	12	22	75(37.12%)
DVD	20	7	21	48(23.76%)
Pen drive	15	0	16	31(15.35%)
Floppy	0	0	0	0(0%)
Not any	34	1	13	48(23.76%)
Total	110(54.46%)	20(9.90%)	72(35.64%)	202(100%)

Table 16 depicts the percentage of opinion of the users regarding the use of the secondary storage media in the CUCL for copying the materials while using the internet. 75(37.12%) respondents use the CD-ROM, 48(23.76%) respondents use DVD, 31(15.35%) respondents use pen drive because CUCL has allow them to do so.

Table-17: Different purpose for using the internet by the students

Purpose		No. of respondents			% of respondents
		Commerce	LIS	English language & literature	
E-books		49	11	29	89(44.05%)
E-journals		40	14	21	75(37.12%)
DATABASES	Online catalogue	46	16	39	101(50%)
	Online Journals Archive (under TEQIP)	28	8	0	36(17.82%)
	E-journals (under UGC-INFONET)	14	11	0	25(12.38%)
	E-Books (under TEQIP)	11	5	0	16(7.92%)
	Elsevier: Science Direct journals	0	2	0	2(0.99%)
	Scopus journals	0	0	0	0(0%)
Conference proceedings		5	4	11	20(9.90%)
Theses & Dissertations		10	7	0	17(8.42%)
Standards and Patents		5	5	0	10(4.95%)
Download software		47	6	5	58(28.71%)
Download text		76	14	40	130(64.36%)
E-mail		104	18	64	186(92.07%)
Search Job		91	17	60	168(83.17%)

Table 17 depicts the purpose of internet use by the respondents of CUCL. E-mail was chosen as the most popular internet service with 186(92.07%) respondents, followed by search job on internet with 168(83.17%) respondents. The other purposes of internet service in order of preference is download text-130(64.36%) respondents, online catalogue- 101(50%) respondents, E-books- 89(44.05%) respondents, E-journals- 75(37.12%) respondents, download software- 58(28.71%) respondents, online journal archive (under TEQIP)- 36(17.82%) respondents, Conference proceedings- 20(9.90%) respondents, E-journals(under UGC-INFONET)- 25(12.38%) respondents, Theses & Dissertation- 17(8.42%) respondents, E-book(under TEQIP)- 16(7.92%) respondents, Standards and patents- 10(4.95%) respondents and Elsevier: Science Direct journals- 2(0.99%) respondents.

Table-18: Problems encountered by the users while using internet in the CUCL

	No. of respondents			% of respondents
	Commerce	LIS	English language & literature	
Lack of uninterrupted power supply	4	2	3	9(4.46%)
Limited number of computer terminals	35	8	18	61(30.19%)
Low speed of internet	15	7	19	41(20.29%)
Frequency disconnection	13	4	12	29(14.36%)
Privacy problem	43	10	17	70(34.65%)

It can be inferred from above table that using the internet in the CUCL is not free from problems. Out of total 202 respondents, 70(34.65%) indicate that the common problem is privacy problem, followed by limited number of computer terminals in the CUCL with 61(30.19%). The other problem encountered while using internet in order of preference is low speed of internet with 41(20.29%), frequency disconnection with 29(14.36%) and lack of uninterrupted power supply with 9(4.46%).

Table-19: Co-operation of the CUCL staff with the students while facing any problem regarding surfing the internet

	No. of respondents			% of respondents
	Commerce	LIS	English language & literature	
Help regularly	84	17	28	129(63.86%)
Help frequently	5	0	7	12(5.94%)
Do not help	0	0	0	0(0%)
Well behaved	21	3	37	61(30.19%)
Mis-behaved	0	0	0	0(0%)
Total	110(54.46%)	20(9.90%)	72(35.64%)	202(100%)

Table no.19 shows the co-operation of CUCL staff with the students when they face any problem regarding surfing the internet. Out of total 202 respondents, 129(63.86%) respondents said that CUCL staff help regularly, 61(30.19%) said that CUCL staff well behaved when they face any problem and 12(5.94%) respondents indicate CUCL staff help frequently .

7. Conclusion

The Internet has emerged as the single most powerful vehicle for providing access to unlimited information. The Internet is an inseparable part of today's educational system. The dependency on the Internet and its services is increasing day by day and the students of Calcutta University are depending more and more on the Internet for their various educational purposes. The Internet facility has enabled the students to enhance their academic excellence by providing them the latest information and access to the worldwide information.

The information on the Internet is not usually available in an organized way and the users are unable to get pin- pointed information from the Internet. In order to make the Internet more beneficial, the library staff having a good deal of efficiency in the collection, organization and retrieval of information should feel duty-bound to see that the users are able to obtain right information at the right time. For this, they should organize and classify the information on a Website in such a way that the users are able to find easily the information they need for their studies and research purposes. The library services supplemented by Internet services can prove a great boon to the users in getting the right information at the right time but internet service cannot replace the library services.

8. Suggestions and Scope of further Research

Based on the findings of the study, the following suggestions are put forward to improve the use of the Internet among the students:

1. The timings of the Internet service should be increased and if possible, the service should be made available on Saturdays and Sundays, so that the users can make maximum use of the Internet facility.
2. More computers with the latest specifications and multimedia kit should be installed so that the users can use Internet and other useful services of the Internet.
3. More efficient technical staff should be appointed and they should always be present in the Internet section for expert advice.
4. Sites providing only entertainment should be locked so that the students should not unnecessarily use computers.
5. Some more printers should be installed in the Internet sections of the University, so that the users can get printout of their study material and other important documents at nominal rates.
6. Some orientation training programs should be organized by the University at regular interval so that the maximum users can improve

their excellence or proficiency in the use of the Internet for academic purpose.

7. All the academic news should be provided at the university Website and it should be regularly updated.
8. Information regarding the popular and the latest Websites with their addresses for e-books, e-journals should be displayed on the Notice Board in the Computer Centre.
9. A powerful generator should also be kept so that maximum power supply should be ensured to optimize the benefits of Internet services.

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Information Need of Mech Community at Maa Bhandani Hat in Jalpaiguri District

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Abstract : Information is a crucial ingredient for the socio-economic development of the people. This study describes a vivid picture about the different aspects of information need of Mech Community at Maa Bhandani Hat in Jalpaiguri District, West Bengal. This paper highlights the socio-economic condition of Mech Community considering all the aspects of their life. Overall, it is a clear and graphic description about the peoples belonging to the Mech Community.

Key Words : Information Needs, Himalayan Tribes, Mech Community, Maa Bhandani Hat, Jalpaiguri, Social Welfare Schemes.

Introduction

There are several group of Tribes settled in North Bengal specially in Jalpaiguri District. Various groups and sub-groups live in this area. These tribes include Mech, Dhimals, Rabha, etc. The Meches of North Bengal are of Mongoloid origin and the word Mech has been derived from the Sanskrit word 'Mlechcha.' It is also said that the Meches at first lived on the banks of the river Mechi in Nepal. According to Dr. Sunil Kr. Chatterjee Mech, Koch, Rajbanshi, Rabha, Garo, Kocheri, Dimsa, Chuliya, Haijang and Tipra (Tripuri) belong to the Bodo ethenic group. We have found that most of the mech population mainly concentrated in Mahakalguri and Dhanirampur number 2 Gram Panchayat in Jalpaiguri District. The Meches speak in Mechi, Bodo among them and speak and understand Bengali. The Meches do not have a script of their own. They use the Roman, Devnagari, Bengali scripts. Basically they have very different custom and culture. Within the last few decades, Meches developed drastically. They are able to develop their economy. Like our life rapid introduction of technology and modern equipment influence the life pattern of Meches a great deal. Some of the Mech people able to improve their social status in the present society. But the most important aspect is that they are able to keep their old culture and ritual in this rapidly changing environment.

Information Need is one of the important aspect in everywhere in the world. There are usually two types of needs i.e. expressed need and unexpressed need.

But we are working with the second category that is unexpressed need. It has been found from the several studies that the tribal communities usually unable to express their need for information in various matters. For that information need may be ascertained through the appraisal of community. We can get the clear picture of information need of any community by knowing its people and their role, their characteristic features, economic activity, occupational pattern and social and cultural life.

There are few problems in assessing the information need of community:-

(1) Tribal people do not think about the information need.
(2) Their information need is unexpressed.
(3) There is no such good information system in the tribal locality where the tribal people can judge their information requirement.
(4) This people are usually non-user of the library.

The term 'non-user' of the libraries and information centres connects the different ideas.

There are two types of non-user-

(1) Adamant non-user
(2) Under- privileged non user.

When the literate persons do not use the library although they have all the facilities and chance to use them, they are called adamant non-user. But when the illiterate people do not have formal association with the library facilities, they are called under- privileged non-user.

Basically poor rural tribal people have utmost desire of the modern amenities. But since, they are poor and illiterate they are unable to express the need of these modern amenities. As the society progress they are getting the taste of modern facilities. But their unexpressed need may not be converted into expressed need when they require information about the concerned item. Community information can play a major role by providing them proper information in right time which enables them to raise their living standard and knowledge of their law and rights.

Scope and Coverage:

The scope of this study is to present the community information needs of people belonging to the Mech Community. The study has been carried out in the Dhanirampur 2 no. Gram Panchayat in the district of Jalpaiguri, West Bengal. Dhanirampur 2 no. Gram Panchayat consist of 5 Mouza, namely-

1) Khagen Hut Purbangsho
2) Changmari Tari
3) Dhanirampur
4) Ghatpar Saru Gaon
5) Sisubari Saru Gaon

Out of this 5 Mouza, our study concerns only 2 Mouza (Khagen Hut Purbangsho and Sisubari Saru Gaon) as Mech Community mainly concentrated in this two mouza.

The total population of this Gram Panchayat is 23,570. Out of this, 15,370 are adult (9260 male & 6110 female) and 8,200 are child.

The total Mech population is 762. Out of this, 310 (175 male & 135 female) are adult and 452 are child.

This study also covers educational and occupational structure, economic and social conditions, health and sanitations, religions and cultural aspect of Mech Community at Dhanirampur 2 No. Gram Panchayat.

Literature Review:

An article titled "The tribes of Jalpaiguri District" in West Bengal District Census Handbook, Jalpaiguri, by B. Ray in 1961 discussed the population of Mech Community. Their occupation, education system, culture, customs and belief were discussed in this article.

The book "The Meches and the Totos: Two Sub-Himalayan Tribes of North Bengal" by Charu Chandra Sanyal, 1973 discussed detailed about origin, social matters, daily life and the place where the Meches live. Education system, social manners and customs are also discussed in the book. Sanyal also presented the language of the Mech in chapter I. Chapter – IX was discussed about their (Meches) customs, beliefs & rituals. Chapter- X was presented on religion and Gods. Chapter – XI was discussed about folk culture with special emphasis on songs. Chapter – XII was discussed about the life history of a few Meches present in different villages that writer interviewed.

In 1981, H.H Risley in his work entitled 'The Tribes and Castes of Bengal' had pointed out a vivid account of information about the Meches of Darjeeling and Jalpaiguri districts. He explored the subdivisions among Meches (i.e., two sub-tribes), their social customs and functionaries like marriage, funeral system (e.g. burning of dead body), religious belief and social status. He also revealed the trend of occupation among Meches. Meches generally shifted from jhoom method as their occupation to rearing of silkworm and again to cultivation time to time.

G .K. Ghosh in his book "Tribals and their culture in Assam, Meghalaya and Mizoram", vol.1, published in the year 1992, discussed about different tribal community in same specific area of India. Author discussed regarding several group of tribes settled in North Eastern Region. Origin of this communities including Mech had been discussed briefly. Religious aspects of Mech Community was discussed in details including mentioning their God & Goddess.

Their main cultural festivals were also given here. Agriculture, food habits and songs of Mech Community showed their way of life. The discussion in the book shows that Mech culture had an inherent richness.

"Encyclopaedic profile of Indian tribes" edited by Sachichidanada and R.R. Prasad and written by Atulchandra Bhowmik, in the year 1996, which discussed the geographical area and population of the community. It also discussed the origin of the community. It presented in detail the marriage system, customs and rituals, food habits and agriculture. Different social systems, rural administration, health were also explained.

"People of India : West Bengal", edited by K.S. Singh, 2008, vol. xxxxiii, part 2, which presented the origin, religious customs and beliefs of Mech Community. Besides, it was discussed on the anthropological and administration structure of Mech. This part shows detailed about the food habits, cultivation and social structure of Mech Community.

An article "Sexual dimorphism in health and nutritional status of three communities of Darjeeling District in West Bengal and comparison with some other populations of Easter India: an anthropometric appraisal', written by Sudip Datta Banik and others, in the 'Journal of Life Science', vol.1, no.1, published in the year 2009, presented a nutritional status of adult of three endogamous populations – Dhimals, Mech, and Rajbanshi of Darjeeling in West Bengal. This study was discussed about a preliminary record of information of anthropometric appraisal of health and nutritional status of adult section of both the sexes belonging to these three communities.

An article titled "Mech jibanay biyer gaan" by Promad Nath in the Journal of 'Lokosruti', June 2009 was studied for the anthropological, historical, and sociological perspective of Mech.

An article titled "Mech Sanskritir Nitiya" by Deboprasad Banarjee in the Jounal of 'Lokosruti', June 2009 was studied for the cultural and sociological perspective of Mech. It was discussed about the folkdance of Mech.

An article titled "Ethnobotanical formulations for the treatment of Jaundice by the Mech tribe in Duars of West Bengal", by Ajita Sarkar and A.P. Das in the 'Indian Journal of traditional knowledge' vol.9 (1), January2010 discussed the folk medicine of Mech Community in the Duars, Sub – Himalayan region of West Bengal. It also shows the dependance on traditional methods of treatment recovering from most of their health problems and also emphasized jaundice and followed the traditional treatment for this disease.

An article titled "Traditional and Modern Occupations of the Tribal Communities of West Bengal", written by A.K. Das, was published in the book 'West Bengal tribes: socio – economic and cultural life', edited by A.K. Das, in the year 1991, presented a comparison of traditional and modern occupations of a few tribal communities. It also presented the various occupations taken by different tribal communities and nature of occupations. Different welfare measures had also been discussed in this article.

An article titled "Impact of educational schemes on the progress of modern education among scheduled tribe communities", written by Bidyut Kumar Roy Chowdhury was published in the book 'West Bengal tribes: socio – economic and cultural life'and edited by A.K. Das in the year 1991, analysed the impact of various Govt. welfare schemes to implement for the development of the backward societies. These schemes dealt with those backward societies of the West Bengal by way of spreading modern education.

An article titled "Religions of the scheduled tribes of West Bengal", written by Amal Kumar Das, published in the book 'West Bengal tribes : socio – economic and cultural life, edited by A.K. Das was in the year 1991, discussed religions found in every tribal culture. It presented religious pursuits of the different scheduled tribe communities of the West Bengal, and the extent of their inclination towards different types of religions.

An article titled "Languages and dialects of the tribes of West Bengal", was written by A.K. Das and R.N. Saha. The book 'West Bengal Tribes: Socio – Economic and Cultural Life', was edited by A.K. Das, in the year 1991 which was discussed about the different folk linguistic of different tribal community, those are Santali, Mundari, Bhumij, Mahali, Ho etc. It discussed about the Dravidian speech. It also discussed about the Assam – Burmese group, the languages of the Tibeto – Chinese family. This article also discussed about the State Government's initiative for the development of the tribal languages through their literature and other literary activities.

An article titled "A note on important festivals among the major tribals of West Bengal", written by Sunil Kumar Basu, was published in the book 'West Bengal Tribes: Socio – Economic and Cultural Life' and edited by A.K.Das, in the year 1991 discussed about the different tribal folk that spread over the length – breadth of West Bengal. It also discussed different culture of different tribes. Different festivals and literature of tribal community are also discussed. A detailed discussion about the different folk festivals of different tribal communities is presented in this article.

An article titled "Shaborder gaan : Kichu Katha Kichu Sur", written by

Krishnendu Chattopadhyay, was published in 'Lokoshruti', February, in the year 1996, which presents the songs of Shabor Community which they performed in different rituals and festivals among their community.

An article titled "Toto Janajatir artho – samajik biborton o sanskriti", written by Bimalendu Majumder, was published in 'Lokoshruti' February, in the year 1996, discussed about the Toto Community resides in Madarihat of Jalpaiguri. This article also discussed their socio – economic evolution.

An article titled "Tamang Janajati", written by Kajiman Gole, was published in Lokoshruti', February, 1996, presented about the Tamang Community of Nepal. It presented the music, dance and marriage customs of this community.

An article titled "Totó Janajatir Gram Sangathan o Samajik Niyontronbidhir Rupantar", written by Bimalendu Majumder, was published in Lokoshruti, July in the year 1997, discussed about the village administration and social control mechanism of Toto Community.

An article titled "Tribal Community Information Services in India", written by Dr. Biplab Chakrabarti and Ashok Basu , in the 'Vidyasagar University Journal of Library and Information Science', vol. 2 , published in the year 1997, presented an overview of tribal communities present in India, their information needs and their sources of information in their community. It also emphasized on the role of libraries in the development of the tribal community.
"Need for Educational Information among Toto", written by Biplab Chakrabarti, in the 'Librarian, Vol.6 , 1999'was published by Department of Library and Information Science, Jadavpur University, had explored that Totos, a small tribal community in Jalpaiguri were in utmost need of educational information. The study stated that the demand for information is closely related to the level of development of community concerned and this demand may increased with the passage of time. The author had suggested for introduction of community information centers, effort from the govt. and development of script of the said community for better informational support.

In the year 1999, Biplab Chakrabarti and Asok Basu in their article entitled " Information needs of the Totos : a Sub – Himalayan tribal community" published in IASLIC Bulletin, vol.44, no.4, 1999 , had worked on the various types of information requirements of Toto Community. Emphasis was given on their occupation, natural products and its market prices on which their livelihood depends. They also suggested that how govt. programmes, telecommunication network, study centres under tribals welfare departments may be improved their socio – economic position.

An article titled "Totopara Rural Library and its users with a special reference to Totos in Jalpaiguri District, West Bengal", written by Biplab Chakrabarti and Asok Basu, was published in ' Calcutta University Journal of Information Studies', vol. 2, in the year 1999 – 2000 , which discussed about the Totopara rural library in Jalpaiguri district. It also presented the library consciousness among Totos. Utilization of leisure time by library members of this community was also described here.

Biplab Chakrabarti and Asis Karan in their article 'Bio – Centre of M.S. Swaminathan Research Foundation' published in 'Calcutta University Journal of Information Studies vol. 2, 1999- 2000, had analysed the very goal, objective, activities and information services provided by the Bio – Centres of M.S. Swaminathan Research Foundation. They found that the activities of Bio – Centres were truly designed and activated for health, education and agriculture related information needs of the disadvantaged community in and around Villianur Village amidst their poverty with the traditional as well as modern information system.

In a seminar presentation entitled "Community Development in India: An overview (Asian Productivity Organization on Comparative Study of Planning Process of Community Development: Components of Peoples Participation, August, 2000, N.G. Hegde had discussed the community development process in India through programmes. The study explored the causes of poverty, problems of the poor and different programmes and projects undertaken by government and non – government organizations to eradicate poverty. It also had discussed and gave stress on people's participation or initiatives for progress (through co – operatives etc.)

An article entitled "Over the edge of Information in the Information Age: Informational Behaviour of the Totos: A small Marginal Tribal Community in Sub – Himalayan North Bengal, India. One individual perspective" by Biplab Chakrabarti, was published in International Information and Library Review in 2001, explored and examined the information needs and information seeking behaviour of a marginal underprivileged tribal community namely Totos. The author had come to a conclusion that information seeking behaviour of a community depends on various factors like psychological, social, cultural, historical, educational, economical etc. He had suggested for information of Community Information Centers, media services etc. to provide them relevant information and necessity of a tribal script to encourage them and to express their information need.

An article titled "Genetic variation of Serum proteins among the Koch sub –

populations of West Bengal, India", written by M.K.Das, K Das, S.S. Mastana , in the ' International Journal of Human Genetics', vol.2, no.4 was published in the year 2002, which discussed about the genetic structure and differentiation of Koch scheduled caste group and their sub – groups of West Bengal.

An aricle titled "Banglar Bagdi Samproday', written by Bhabo Roy, Published in 'Lokoshruti', vol.2, issue 1, in the year 2003, presented about the Bagdi Community of West Bengal. It also discussed the folklore of this community.

In 2003, Tridib Chattopadhyay and Biplab Chakrabarti in their work entitled 'Educational Information Need of Solapith (Malakar) Community at Bankabasi village in Burdwan District of West Bengal and the role of Gram Panchayat had observed the information need of the said community and examined the effect of information obtained from information centres like public and rural library or other belongs to this community. The study had explored that Solapith Community needs educational information for their professional development. For that developments it needs maximum supports from the government and non – government agencies and restructuring of rural library acting as an information hub.

An article titled "Uttarbanga Rabha Sanskriti o Ritiniti", written by Sushil Kumar Rabha, was published in 'Lokoshruti', vol.4, issue 1, in the year 2005, which presented about the Rabha community of North Bengal. This article also discussed about their language, culture, song and rituals of this community.

Biplab Chakrabarti in an article named "Information Need of Dhibar Community of Phakirala and Malopara" published in the 'Calcutta Review' in 2005 had identified information needs of a community namely Dhibars in Phakirala and Malopara on economic aspects, education, health and the measure taken by government and non-governmental organizations. He assessed the extent of access and exposure of information regarding their occupation i.e. fishing etc. and evaluated the activities and effectiveness of Community Information Service on the basis of their need. The other recommendations were for some training and awareness programmes designing effective knowledge base and need of Co-operation and participation of government agencies and local people to support information need of the fishermen community.

An article titled "A study of utilization of communication channels and information seeking behaviour by the tribals for improving their health care practices", written by T. Mathiyazhagan and others, was published in 'Health and Population – Perspectives and Issues', vol.30, no.4, in the year 2007, presented the utilization of different communication channels by the tribals for getting information on various health and family welfare programmes. It showed their information seeking behaviour with reference to health care practices. This article showed that the tribals tend to believe in interpersonal communication as well as in traditional media of communication. This article suggested that a combination of interpersonal communication and traditional media may be adopted to deliver health care messages to the tribals.

An article titled "Sharing traditional knowledge and cultures of different tribes of West Bengal, India", written by Ratna Bandyopadhyay, was published in 'World Library and Information Congress: 74th IFLA General Conference', in the year 2008, discussed about the preservation of the traditional knowledge and culture of tribes that were not being preserved in written form and the role of librarians and libraries, NGOs and other institutes in this matter.

An article titled "Ethnomedical plants used in West Rarrh Region of West Bengal", written by Ashis Ghosh, was published in "Natural Product Radiance', vol.7, no.5, in the year 2008, presented the use of plant based drugs by tribal people in West Rarrh region of West Bengal.

An article titled "The Dhimals – a little known tribal group of Sub- Himalayan West Bengal: Historical Perspectives", written by Subir Biswas, published in 'Study of Tribes Tribals', vol. 6, no. 2, in the year 2008, discussed an overview on Dhimal Community of West Bengal. Author consulted different writings of eminent scholars on Dhimal Community and presented the present status of this community.

An article titled " Estimation of stature from foot length and foot breadth among the Rajbanshi : an indigenous population of North Bengal", written by J. Sen and S. Ghosh, published in ' Forensic Science International', vol. 181, issue 1-3, in the year 2008, was presented on the measurement of stature , foot length and foot breadth of adult Rajbanshis. The study claims that the stature, foot length and foot breadth were positively and significantly correlated with each other. This study has provided equations to estimate stature from the feet dimensions among the Rajbanshis.

In the year 2008, Nishat Fatima and Naved Ahmad in their article entitled " Information Seeking Behaviour of the students at Ajmal Khan Tibbiya College, Aligarh Muslim University : a survey", was published in 'Annals of Library and Information Studies' vol.55, June 2008, which had worked on the information seeking behaviour of the students of this college. They stated about the use of library resources and services by the students. Besides they found that text books and journals are most popular sources of information and suggested that the library should introduce initial orientation workshop and seminars which may maximize the utilization of library resources and services.

An article titled "Role of Maniram Gram Panchayat in the development of Dhimal Community in the district of Darjeeling, West Bengal", written by Asis Kumar Karan, published in 'Calcutta University Journal of Information Studies', vol.11, in the year 2009, presented the life and culture of Dhimal community at Maniram Gram Panchayat in Naxalbari Block of Darjeeling District. It also identified the Panchayat Project and Programme towards Dhimal Community. This article also suggested for the development of Dhimal Community in relation to the activities of Gram Panchayat.

An article titled "Expanding horizon of Information Services to the Disadvantaged: a study on Dhimal community a Naxalbari Block of Darjeeling District", written by Biplab Chakrabarti and others, in ' Calcutta University Journal of Information Studies, in the year 2009, discussed about the socio-economic conditions of Dhimal Community of Naxalbari Block of Darjeeling District, West Bengal. It discussed in detail origin, social status, role of Gram Panchayat in the development of the community.

An article by Tridib Tripathi "Information Requirements of Social Scientists and Humanists of Burdwan University : A Survey published in the Calcutta University Journal of Information Studies, vol.3, 2001 analysed the information requirements of social scientists of the said university , evaluated the information sources consulted by them. The study revealed that the information requirements and the approaches to information by the researchers of Humanities and Social Sciences of the said university varied from one group to another group. The study emphasized on the collection development of periodicals, strengthening of bibliographical a documentation services and participation of the library in resource sharing programmes with other libraries.

An article titled "Information Technology – Need of the Hour Rural Development" by Manoj Mandal published in 'Indian Media Studies Journal' vol.1, no.1, 2006, vividly explained the importance of information technology in terms of rural development. The study finds the need of computerization of rural information system programmes and introduction of NIT's and a communication system in the villages for collection and dissemination of agriculture, financial, cultural improvement of rural people.

An article entitled "Information Needs and the use pattern of Disadvantaged Communities: a case study" written by Mahendra Kumar Seth and Baman Parida published in 'Library Philosophy and Practice' vol. 9, no.1, 2006 had covered the SC/ST students, researchers and faculty in the academic institutions of the eleven districts of Orissa to identify the information needs patterns of disadvantaged communities. The study narrated that disadvantaged rural people were deprived of education and information which may be made worse by a lack of awareness and access of information. The authors emphasize on the proper implementation of public library services taking adequate advantage of IT and the governmental supports to do that.

An article titled “Information Needs of Cottage Industries : a survey on North 24 Parganas District” in ‘Calcutta University Journals of Library and Information Science’ in the year 2006 written by Biplab Chakrabarti and Dipak Kumar Kundu stated that most people engaged in cottage industries depend on their traditional methods to gather their required information. They strongly desire to have an information centre or rural information centre though hardly have sufficient time. The study also has found that illiteracy is one of the obstacles for collecting their needed information.

An article titled “Information Seeking Behaviour of Agricultural Scientists with particular reference to their Information Seeking Strategies” in ‘Annals of Library and Information Studies’ written by K.P. Saha and M.P. Satija in 2007, had worked on information seeking behaviour of agricultural scientist of ICAR Institutions of Delhi and Punjab Agricultural University, Ludhiana. They found that the agricultural scientists had expressed their great dependence on institutional libraries and also like to get their information through their efforts. This study opined that the agricultural scientist seeks diverse information from varied sources from different purposes. Thus a single mode of formal information channels is not sufficient to meet their requirements. This article concluded that working culture of individual needing information, the importance placed on getting it, the facilities available for seeking it, the knowledge about these facilities, were the factors that may affect information seeking behaviour.

An article titled “Farmers Information Needs in Rural Manipur : an assessment” written by L. Shanta Meitei and Th. Purnima Devi, published in ‘Annals of Library and Information Studies’ vol. 56, in the year 2007, presented the information needs of the farmers community in the rural areas of Manipur. The channels of information communication and sources of information dependence used by the farmers were examined here. This article suggested that application of ICT based agricultural support system is very much important for the dissemination of agricultural information and technological know how by rural farming community.

An article titled “A comparison of the information seeking pattern of distance learners in Botswana: A case study of four tertiary institutions” written by O. Oladokun, in the ‘Journal of Library and Information Services in Distance Learning’, volume 4, issue 3, published in the year 2010, presents the information seeking behaviour of two categories of distance learners in Botswana, comprising the cross border students and those that registered with the University of Botswana.

An article titled "Online mental health resources for adolescents: Overview of research and theory", written by T. Edwards-Hart and A. Chester, in the 'Australian Psychologist', volume 45, issue 3 was published in the year 2010 and presented a review which examines theoretical and research studies to develop an understanding of adolescent mental health-seeking behaviour on the Internet.

An article titled "Research behavior patterns of business students", written by E. Dubicki, in the 'Reference Services Review', volume 38, issue 3 was published in the year 2010, presented the research needs of undergraduate and graduate business students at Monmouth University. The paper investigated at where these students began their research, which tools they used, and the challenges they faced in conducting research and also the students' preferred methods of seeking assistance in completing their research.

An article titled "Science vs. social science: A study of information-seeking behavior and user perceptions of academic researchers", written by N.K. Sheeja, in the 'Library Review', volume 59, issue 7 was published in the year 2010, presented a comparative study of the information-seeking behavior of science and social science research scholars, including service effectiveness, satisfaction level on different type of sources and various methods adopted by the scholars for keeping up to date.

An article titled "Researchers' E-journal use and information seeking behaviour", written by D. Nicholas and others, in the 'Journal of Information Science', volume 36, issue 4 was published in the year 2010 which presented the results of the second phase of a Research Information Network study, which sought to establish the impact of e-journals on the scholarly behaviour of researchers in the UK. It presented a deep log analysis of the usage and information seeking behaviour of researchers in connection with the ScienceDirect and Oxford Journals databases.

An article titled "Assessment of the problems LIS postgraduate students face in accessing e-resources in Makerere University, Uganda", written by C. Okello-Obura, in the 'Collection Building', volume 29, issue 3 was published in the year 2010, made a study that was conducted to analyse the LIS postgraduate e-resources seeking behaviour in Makerere University, Uganda. Its purpose was to present and discuss specifically the problems of LIS postgraduate students were facing in accessing e-resources.

An article titled "Parental management of childhood complaints: Over-the-counter medicine use and advice-seeking behaviours", written by M. Trajanovska and others, in the 'Journal of Clinical Nursing', volume 19, issue 13-14 was published in the year 2010, explored parental management of childhood complaints with respect to factors associated with the purchase of over-the-counter medicines and sources of information accessed by parents.

An article titled "Analyzing traditional medical practitioners' information-seeking behaviour using Taylor's information-use environment model", written by W.M. Olatokun and E. Ajagbe, in the 'Journal of Librarianship and Information Science', volume 42, issue 2 was published in the year 2010, presented the information-seeking behaviour of traditional medical practitioners using Taylor's information use model.

An article titled "Information behaviour and coping functions of long-term unemployed people in Finland", written by R. Perttil and S. Ek, in the 'Libri', volume 60, issue 2, published in the year 2010 presented a quantitative study of coping functions and information behaviour of long-term unemployed people in Finland.

An article titled "The place of the person in LIS research: An exploration in methodology and representation", written by D.H. Michels, in the 'Canadian Journal of Information and Library Science', volume 34, issue 2, published in the year 2010, reflected the personal experience of the researcher as a student at an academic library over the course of one year of PhD study. This study assumed that the different paradigms and theories about information behaviour affect how the individual would be understood within this system.

An article titled "Information seeking behaviour of users in university libraries in digital environment", written by H.G. Gaur and R. Sharma, in the 'ICWET 2010 - International Conference and Workshop on Emerging Trends in Technology 2010, Conference Proceedings', published in the year 2010, dealt with the definitions and factors of Information seeking behaviour and various models designed and proposed by the library and information scientists like Marchionini, Girja Kumar, Ellis, Wilson and Kuhlthau's model of ISB, Information Seeking through Internet (E-resource).

An article titled "Health seeking behaviour of parents of burned children in Bangladesh is related to family socioeconomics", written by S.R. Mashreky and others, in the 'Injury', volume 41, issue 5, published in the year 2010 explored the health seeking behaviour of Bangladeshi parents for their children during burn injuries.

Objectives:

A study of the Mech community residing at Maa Bhandani Hat of Jalpaiguri District was conducted with the following objectives:

1) To draw a complete socio-economic profile of the Mech community
2) To assess the age of sex wise population distribution of the Mech community.
3) To study their need of information regarding various areas such as education, agriculture, occupation etc and to identify the sources from where they get it.
4) To know about the government efforts to uplift the conditions of the Mech community.
5) To study the awareness level of the Mech community about the existence and role of the community Library and information centre.
6) To study about the different social welfare schemes and their use by the Mech community.
7) To find out their awareness about the health and hygiene like sanitations, vaccination etc.
8) To examine their use of the traditional and modern forms of medicine.
9) To suggest the possible ways to improve the socio-economic status of the Mech community.

Methodology:

This research was made to explore the information need of Mech community residing in the area of Maa Bhandani Haat, Dhanirampur, 2 no. Gram Panchayet, Block- Falakata, Subdivision- Alipurduar, in the district of Jalpaiguri, West Bengal. To complete this descriptive research various methods were used such as questionnaire method, schedule method, interview method and observation method as a part of survey.

To begin this research work several literatures were searched relating to our research work. To do this literature search help of different libraries and different institutions have been taken including Central library and other campus library of University of Calcutta, National Library, Asiatic Society Library, Anthropological Survey of India, State Central Library etc. Then to get the information needed for our research a questionnaire was prepared. Before forming the questionnaire a pilot survey was done by surveying few people of a community. On the basis of that pilot survey the final questionnaire was made. This questionnaire consisted both open and closed questions. The main aim of the questionnaire was to get data from which we can assess the information need of this Mech community of Maa Bhandani Haat.

Data had been collected by interviewing the respondents. Data had been collected through schedule method as the answer of respondents was noted down by researchers. Observation method also helped to collect data about their daily life and need. Collected data was arranged in few tables. From the tabular form, analysis was made. Interpretation was done on the basis of these analysis and on the basis of this interpretation a conclusion was drawn.

About the community:

The Meches are scheduled tribe community of West Bengal, their main concentration being in the district of Jalpaiguri where 97% other total Mech population of the state reside .The Mech population as per 1981 census is 26,959 out of which about 90% (24,368) reside in Jalpaiguri district. Of the remaining Mech population,1,252 live in Darjeeling district , 251 in mwsinipue, 166 in Hoogli, 154 in west Dinajpur,137 in Bankura,108 in 24 paraganas , 96 in Burdwan ,94 in malda,85 in Coochbehar district and siliguri police station of Darjeeling district. Jalpaiguri district most of them are concentrated in the sub-hilly regions. In this district they are mainly concentrated in satali and Nimti unions of Kalchini P.S salkumar union of Alipurduar P.S. They are also found in isolate Mech hamlets in the Duars. From 1872 to1951 i.e. during the last eight decades the Mech population has increased by 1056.16% in the state of West Bengal.As a result,the population of the Meches has come down form 25,386in 1891 to 10,787 in 1951.

The Mech of Darjeeling and Jalpaiguri district is divided into two sub- tribes-Agnia-Mech and Jat-Metch. Our survey area is Dhanirampur 2 No. gram panchyat & Sisubari Saru Gaon. There are 3 types of Mech; those are Hindu, Muslim, & Christian.

Housing: There are some mud & some concrete building in Dhanirampur. In case of Sisubari Saru Gaon it is found that most of the houses are build by mud & few are made by hogla pata.

Occupation: The main occupation of Mech is cultivation & other occupations are farming, fishing and labour. Same picture is found in Dhanirampur & Sisubari Saru Gaon.

Food: The Mech people's food habit mainly heated rice or paddy on open fire and eat fried rice. They genereally buy puffed rice from the market. They make flattened rice at home and offer it in their pujas. They relish sweetened balls made of puffed rice or rice pop. They usually take rice fried on hot sand, maize seeds fried without oil or roasted maize.

Religious Notion and cults: The Meche's worship the river such as the Tista, Torsa, Sankosh. The worship Masha, Mahakal, Maionou, Mabhandani puja. They also believe the trees have souls like their own, so tree worship is an important popular custom in the Mech community. It is also belived that the tree-souls also capable of being transferred into men and animal and vis-varsa. The great god of Mech's Bathou is worshiped in every Mech house. In every puja, sacrifice of animals and birds is a famous part of the ritual. Mabhandani is the God of this community.

Administration of Justice: Panchayet plays the main role in the village of Mech community.

Language: The language of the Mech possesses a rich vocabulary, like Tibeto Burman language. Their words do not possess wide meaning as is Indo Aryan.

Education: There are few primary schools but there is only one high school. Male and female of Mech community is generally not much higher educated.

Sports: The Meches also enjoy sports. Few of them are curgame, cilladaoma, Maklaw- many game, gilakanni, ntalkanni, domgelanai, Aconbicon gelanoi etc. are the famous sedentary games of the Mech community.

Marriage Customs: Marriage customs and rituals vary form age to age. Marriages were usually settled by mothers. Brideprice called 'Jam' was always charged amounted form Rs.10/- to Rs.50/-.Recent time male members settle marriage. Nobody could mercy outside his own tribes & contravention punishable.

Family: Most of the families in Mech community are joint or extended.

Cultural System: Bagrumbamsani is an important & older cultural system in Meches. Festival observes in every spring time. Chatrali is a war dance in Meches. Bardai Mikhla is also an important dance. There are so many fair, festival, dance, songs etc. at Mech community.

Cloth: Children put on a small piece of cloth called 'Nangti' spun and woven by the ladies at home. When ten to twelve years old they war a larger clothe 'Gamcha'. In winter they use to wrap the body eith a wrapper of cotton or Endi spun and woven at home. This wrapper is 'Modomoni-Gamcha'. They also use a banian, a sort of coatof cotton or of Endi. The women, formerly and even now, tie a cloth round the chest just below the armpit that hangs to the Knees. It is called Dokhna-thinthai (when plain) and Dokhna- Ashri(when ornamented).the women do not use any other body or headcover. In advanced families the women wear 'Sari' and body cover (blouse). Bare headed women are called 'Langthia'.

Health: This community is not much concerned about health and hygiene. When they suffer form diseases, they mainly take Homeopathic treatment.

Rituals: Most of the people of this community are Hindu and they worship 'Lord Shiva'. Every home has 'Tulsi Mancha' or 'Phoni Manasa' which they worship as god.

Drinks: 'Jou' is the drink for all. Liquor made form fermented rice is called 'Jou' and that form millet is called 'Lu'. 'Jou' is prepared as follows: some ride is half boiled with water. Another kind of 'Jou' is prepared as follows: The jar treated as above is kept aside for six months keeping the mouth of the jar tightly closed with as earthen plate smeared on all side with sticky earth. 'Jou' is drink by all including the women. 'Jou' should not be offered to god Shiva, Bathan and mainou.

Analysis of the Data:

Table 1
Distribution of Total Population at Maa Bhandani Hat, Jalpaiguri

Total Population	Mech Community	Other Community
23,570	762 (3.23%)	22,808 (96.77%)

From this table, it is revealed that, total population at Maa Bhandani Hat, Jalpaiguri is 23,570. There are only 762 (3.23%) in Mech Community and other community are 22,808 (96.77%).

So, it is very clear from the table that among total population, number of other community is greater than number of Mech community.

Table 2
Distribution of Respondents and Non-Respondents among Adult and child population

	Adult		Child		Total
	Male	Female	Male	Female	
Respondents	122 (16.01%)	128 (16.79%)	-	-	250 (32.80%)
Non-Respondents	53 (6.96%)	7 (0.92%)	452 (59.32%)	-	512 (67.20%)
Total	175 (22.97%)	135 (17.71%)	452 (59.32%)	-	762 (100%)

The above table shows that out of 260 respondents (32.80%), 122 males (16.01%) & 128 females (16.79%) are adult, 512 persons (67.20%) are non respondents out of the 512(67.20%) non respondents persons 53(6.96%) are male adults, 7(0.92%) are female adults and 452(59.32%) are child.

In the above Table we can say that out of the 762(100%) total population 175(22.97%) are male adult 135 are female adult and 452 are child. Therefore the growth of child are ever increasing or fastly increasing for that we get the maximum number of non respondent i.e. 512.

Table 3
Distribution of respondents according to Age and Sex

Age group	Male		Female		Total	
	Number	%	Number	%	Number	%
Upto18	10	4%	16	6.4%	26	10.4%
18-28	44	17.6%	44	17.6%	88	35.2%
28-38	18	7.2%	27	10.8%	45	18%
38-48	25	10%	19	7.6%	44	17.6%
48-58	15	6%	13	5.2%	28	11.2%
58 Above	10	4%	9	3.6%	19	7.6%
Total	122	48.8%	128	51.2%	250	100%

From this table it is revealed that there are 122(48.8%) male and 128(51.2%) female in the sample population. In the age group of upto 18 total number of male is 10(4%) and female is 16(6.4%). So26 persons belong to the age group of upto 18 which is 10.4% of the total respondents. Similarly in the age group of 18-28, 44 male respondents and 44 female (17.6%) respondents are present. So, there are 88 persons in the age group of 18-28 which is 35.2% of the sample population. 18 male and 27 female are there in the age group of 28-38. Total 45 persons i.e. 18% belong to this age group. In the age group of 38-48, 25 male and 19 female belong that means 44 i.e.17.6% persons are in this age group.15 male and 13 female total 28 persons belong to the age group of 48-58 which is 11.2% of the total respondents. In the age group of 58 above, 10 male and 9 female i.e. total 19 persons are there which 7.6 % of the sample population is.

So it is very clear from the table that number of female is greater than number of male. In the age group of upto 18, 18-28 female population is greater. In the age group of upto 18, 18-28 male and female population is same. Total number person are highest in the age group of 18-28. So it can be concluded that young people of age 18-28 covers the major portion of the population.

Table 4

Distribution of Respondents Sex and Age Wise in Respects of Educational Qualification

Age group	Just Literate		Up to Class-IV		Up to Class-VIII		Class-X Pass		Class-XII Pass		Graduate		Total Literate		Total Illiterate		Graduate Total (Literate+Illiterate)		Total %tage	
	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	Total	% tage
Up to 18	-	-	-	1 (0.4%)	1 (0.4%)	6 (2.4%)	1 (0.4%)	7 (2.8%)	-	1 (0.4%)	-	-	9 (3.6%)	15 (6%)	1 (0.4%)	1 (0.4%)	10 (4%)	16 (6.4%)	26	10.4%
18-28	-	-	5 (2%)	2 (0.8%)	18 (7.2%)	8 (3.2%)	4 (1.6%)	19 (7.6%)	9 (3.6%)	6 (2.4%)	6 (2.4%)	4 (1.6%)	42 (16.8%)	39 (15.6%)	2 (0.8%)	5 (2%)	44 (17.6%)	44 (17.6%)	88	35.2%
28-38	-	1 (0.4%)	2 (0.8%)	1 (0.4%)	3 (1.2%)	5 (2%)	6 (2.4%)	3 (1.2%)	1 (0.4%)	-	1 (0.4%)	-	13 (5.2%)	10 (4%)	5 (2%)	17 (6.8%)	18 (7.2%)	27 (10.8%)	45	18%
38-48	1 (0.4%)	1 (0.4%)	6 (2.4%)	1 (0.4%)	1 (0.4%)	5 (2%)	2 (0.8%)	-	1 (0.4%)	1 (0.4%)	1 (0.4%)	-	19 (7.6%)	8 (3.2%)	6 (2.4%)	11 (4.4%)	6 (2.5%)	19 (7.6%)	44	17.6%
48-58	1 (0.4%)	-	3 (1.2%)	2 (0.8%)	2 (0.8%)	2 (0.8%)	1 (0.4%)	-	2 (0.8%)	-	-	-	9 (3.6%)	4 (1.6%)	6 (2.4%)	9 (3.6%)	15 (6%)	13 (5.2%)	28	11.2%
58 & above	-	-	1 (0.4%)	-	2 (0.8%)	1 (0.4%)	-	-	-	-	-	-	3 (1.2%)	1 (0.4%)	7 (2.8%)	8 (3.2%)	10 (4%)	9 (3.6%)	19	7.6%
Total	2	2	17	7	41	27	14	29	13	8	8	4	95	77	27	51	122	128	250	-
% tage	0.8%	0.8%	6.8%	2.8%	16.4%	10.8%	5.6%	11.6%	5.2%	3.2%	3.2%	1.6%	38%	30.8%	10.8%	20.4%	48.8%	51.2%	-	100

This table shows that out of total 250 respondents, 95 persons male and 77 persons female are literate. In the age group up to 18, 1 female (0.4%) is class iv passed, 8 male (3.2%) and 6 female (2.4%) are class viii passed, only 1 male (0.4%) and 7 female (2.8%) are madhyamik passed. Only 1 (0.4%) female passed up to xii class but nobody passed graduation. In comparison, there are 1 male (0.4%) and 1 female (0.4%) as illiterate persons in the same age group. This indicates that the rate of literacy in case of female 51 (20.4%) is very much higher than the literacy rate of male 27(10.8%).

In the age group 18-28 the 5 male (2%) and 2 female (0.8%) passed up to class iv, 18 male (7.2%) and 8 female (3.2%) passed up to class viii, 4 male (1.6%) and 19 (7.6%) female passed madhyamik, 9 male (3.6%) and 6 female (2.4%) passed up to class xii, 6 male (2.4%) and 4 female (1.6%) passed graduate, there are 2 male and 5 female (2%) as illiterate persons in the same age group.

In the age group 28-38, 1 female (0.4%) is just literate, 2 male (0.8%) and 1 female (0.4%) passed up to class- iv, 3 male (1.2%) and 5 female (2%) passed up to class-viii, 6 male (2.4%) and 3 female (1.2%) passed madhyamik, 1 male (0.4%) passed up to class xii and 1 male (0.4%) passed graduate, there are 5 (2%) male and 17 (6.8%) female are illiterate in the same age group.

In the age group 38-48, 1 male (0.4%) 1 female (0.4%) are just literate, 6 male (2.6%) and 1(0.4%) female passed up to class-iv, 8 male (3.2%), 5 female (2%) passed up to class-viii, 2 male (0.8%) passed madhyamik, 1male person (0.4%), 1 female (0.4%) persons passed up to class-xii, and only 1 (0.4%) person passed graduate. 6 (2.4%) male and 11(4.4%) female are illiterate persons in the same age group.

In the age group 48-58, 1 male (0.4%) is just literate, 3 male persons (1.25%) and 2 female persons (0.8%) passed up to class- iv, 2 male persons (0.8%) and 2 female persons (0.8%) passed up to class-viii, 1 male (0.4%) passed class-x and 2 male (0.8%) passed up to class-xii, but no body passed graduate. 6 (2.4%) male and 9 female (3.6%) are illiterate in the same age group.

In the age group of 58 & above 1 male (0.4%) passed up to class-iv, 2 male (0.8%), 1 female (0.4%) passed class-viii, 3 male and 1 female has found to be literate and another persons are illiterate.

The findings of the table show that most literate persons belong to the 18-28 age groups. On the other hand persons above 58 years were least educated persons.

Table-5
Distribution of respondents in respect of occupation

Age Group	Agriculture		Labour		Business		Service		Others		More than one occupation	
	M	F	M	F	M	F	M	F	M	F	M	F
Up to 18	4 (1.6%)	2 (0.8%)	6 (2.4%)	-	-	-	-	-	3 (1.2%)	15 (6%)	3 (1.2%)	1 (0.4%)
18-28	15 (6%)	9 (3.6%)	14 (5.6%)	8 (3.2%)	3 (1.2%)	-	3 (1.2%)	3 (1.2%)	16 (6.4%)	30 (12%)	9 (3.6%)	4 (1.6%)
28-38	14 (5.6%)	7 (2.8%)	5 (2%)	10 (4%)	3 (1.2%)	5 (2%)	2 (0.8%)	2 (0.8%)	1 (0.4%)	11 (4.4%)	5 (2%	5 (2%)
38-48	15 (6%)	9 (3.6%)	13 (5.2%)	5 (2%)	2 (0.8%)	-	2 (0.8%)	1 (0.4%)	1 (0.4%)	9 (3.6%)	8 (3.2%)	6 (2.4%)
48-58	10 (4%)	5 (2%)	5 (2%)	2 (0.8%)	1 (0.4%)	1 (0.4%)	2 (0.8%)	-	1 (0.4%)	6 (2.4%)	4 (1.6%)	1 (0.4%)
58 & above	5 (2%)	1 (0.4%)	3 (1.2%)	2 (0.8%)	1 (0.4%)	-	-	-	3 (1.2%)	7 (2.8%)	2 0.8%)	1 (0.4%)
Total	63	33	46	27	10	6	9	6	25	78	31	18
Percentage (%)	(25.2%)	(13.2%)	(18.4%)	(10.8%)	(4%)	(2.4%)	(3.6%)	(2.4%)	(10%)	(31.2%)	(12.4%)	(7.2%)

Out of respondents up to 18 years age group 4 (1.6%) male are engaged in agriculture, 6 (2.4%) in labour, 3 (1.2%) are in others and 3 (1.2%) are engaged in more than one occupation, of whom female respondents 2 (0.8%) are engaged agriculture, 15 (6%) in others and 1 (0.4%) are engaged in more than one occupation. In case of age group 18 to 28 years 15 (6%) male are engaged in agriculture, 14(5.6%) are in labour, 3 (1.2%) in business, 3 (1.2%) in service, 16 (6.4%) in others and 9 (3.6%) are engaged in more than one occupation of whom 9 (3.6%) female are engaged in agriculture, 8 (3.2%) in labour, 3 (1.2%) are in service, 3 (1.2%) in others and 4 (1.6%) are engaged in more than one occupation. Between 28 to 38 age group 14 (5.6%) male are engaged in agriculture, 5 (2%) labour, 3 (1.2%) are in business, 2 (0.8%) in service, 16 (6.4%) in others and 5 (2%) in more than one occupation of whom female are engaged 7(2.8%) are in agriculture, 10 (4%) in labour, 5 (2%) in business, 2 (0.8%) are in service, 11

(4.4%) 0thers and 5 (2%) are in more than one occupation. In case of age group 38 to 48 group 15 (6%) male are engaged in agriculture,13 (5.2%) are in labour, 2 (0.8%) business, 2 (0.8%) in service, 1 (0.4%) in others, 8 (3.2%) are in more than one occupation, of whom female 9 (3.6%) are engaged in agriculture, 5 (2%) in labour, 1(0.4%) in service, 9 (3.6%) are in service and 6 (2.4%) in more than one occupation. In case of age group 48 to 58 years 10 (4%) male are engaged in agriculture, 5 (2%) in labour, 1(0.4%) are in business, 2 (0.8%) are in service, 1(0.4%) in others and 4 (1.6%) engaged in more than one occupation, of whom female 5 (2%) are engaged in agriculture, 2 (0.8%) in labour and 1(0.4%) in business, 6 (2.4%) in others and 1 (0.4%) are engaged in more than one occupation. Above 58 years age group 5 (2%) male are engaged in agriculture, 3 (1.2%) in labour, 1 (0.4%) in business, 3 (1.2%) are in others and 2 (0.8%) are more than one occupation, of whom female 1 (0.4%) are engaged in agriculture, 2 (0.8%) in labour, 7 (2.8%) in others occupation & 1 (0.4%) in more than one occupation. Overall 63 (25.2%) male & 33 (13.2%) female are engaged in agriculture, 46 (18.4%) male & 27 (10.8%) female are in labour, 10 (4%) male & 6 (2.4%) female in business, 9 (3.6%) male & 6 (2.4%) are in service and 25 (10%) and 78 (31.2%) male, female in others and 31 (12.4%) & 18 (7.2%) male, female are engaged in more than one occupation.

From the analysis of the above table, it can be seen that mainly the age group of 28 to 38 years male & female are engaged in various occupation and maximum they are engaged in agriculture, labour and more than one occupation. Main focus is that near about 38.4% male & female are engaged in agriculture.

Table 6

Distribution of Monthly Income Sex Wise According to Their Age Group

Age group	Dependent		Below 500		500-1000		1000-2000		2000-5000		Above 5000		Total	
	M	F	M	F	M	F	M	F	M	F	M	F	M	F
Upto18	2 (0.8%)	13 (5.2%)	-	1 (0.4%)	4 (1.6%)	1 (0.4%)	3 (1.2%)	1 (0.4%)	1 (0.4%)	-	-	-	10 (4%)	16 (6.4%)
18-28	12 (4.8%)	23 (9.2%)	-	2 (0.8%)	6 (2.4%)	9 (3.6%)	14 (5.6%)	3 (1.2%)	9 (3.6%)	5 (2%)	3 (1.2%)	2 (0.8%)	44 (17.6%)	44 (17.6%)
28-38	-	15 (6%)	-	1 (0.4%)	2 (0.8%)	4 (1.6%)	8 (3.2%)	5 (2%)	5 (2%)	2 (0.8%)	3 (1.2%)	-	18 (7.2%)	27 (10.8%)
38-48	-	8 (3.2%)	-	1 (0.4%)	3 (1.2%)	5 (2%)	14 (5.6%)	3 (1.2%)	5 (2%)	2 (0.8%)	3 (1.2%)	-	5 (10%)	19 (7.6%)
48-58	1 (0.4%)	6 (2.4%)	-	2 (0.8%)	2 (0.8%)	3 (1.2%)	4 (1.6%)	-	4 (1.6%)	2 (0.8%)	4 (1.6%)	-	15 (6%)	13 (5.2%)
58 & above	1 (0.4%)	6 (2.4%)	-	1 (0.4%)	2 (0.8%)	-	1 (0.4%)	1 (0.4%)	4 (1.6%)	1 (0.4%)	2 (0.8%)	-	10 (4%)	9 (3.6%)
Total	16 (6.4%)	71 (28.4%)	-	8 (3.2%)	19 (7.6%)	22 (8.8%)	44 (17.6%)	13 (5.2%)	28 (11.2%)	12 (4.8%)	15 (6%)	2 (0.8%)	122 (48.8%)	128 (51.2%)

This table is divided in six different type of age group. These are up to 18 years, 18-28 years, 28-38 years, 38-48 years, 48-58 years and above 58 years age groups. The different income levels are divided between male and female among this age group. It is found that in the lowest age group 10 are male and 16 are female. Out of the 10 (4%) male 2 (0.85) are dependent, 4 (1.6%) are in the income level of Rs.500-1000, 3 (1.2%) are in the income level of Rs.1000-2000, and 1 (0.4%) in the income level of Rs.2000-5000. Out of the 16 female 13 (5.2%) are dependent, 1 (0.4%) female is in the income level of below 500, 1 (0.4%) in the income level of Rs.500-1000, and 1 (0.4%) is in the income level of Rs. 1000-2000. In the age group of 18-28 years 44 (17.6%) are male and 44 (17.6%) are female. Out of the 44 (17.6%) male 12 (4.8%) are dependent, 6 (2.4%) are in the income level of the Rs.500-1000, 14(5.6%) are in the income level of Rs.1000-2000, 9 (3.6%) are in the income level of above Rs.5000.

In the age group of 28-38, 18 (7.2%) are male and 27 (10.8%) are female. Out of the 18 male 2 (0.8%) are in the age income level of Rs.500-1000, 8(3.2%) are in the income level of Rs.1000-2000, 5(2%) are in the income level of Rs.2000-5000 and 3(1.2%) male are in the income level of above Rs.5000. Out of the 27 female 15 (6%) female are dependent, 1(0.4%) female is below 500, 4(1.6%) female are in the income level of Rs.500-1000, 2 female are in the income level of Rs.1000-2000 and 2 (0.8%) female are in the income level of Rs.2000-5000.

In the age of 38-48, 25 (10%) are male and 19 (7.6%) are female. Out of the 25 male 3 (1.2%) male are in the income level of Rs.500-1000, 14(5.6%) male are in the income level of Rs.1000-2000, 5(2%) are in the income level of Rs.2000-5000, 3 (1.2%) male are above Rs.5000 income level. Out of 19 (7.6%) female, 8 (3.2%) female are dependent, 1(0.4%) is in the below Rs.500 income level, 5 (2%) in the Rs.500-1000 income level, 3(1.2%) are in the Rs.1000-2000 income level, 2(0.8%) are in the Rs.2000-5000 income level.

In the age of 48-58 years, 15(6%) are male and 13 (5.2%) are female. Out of the 15(6%) male, 1(0.4%) is dependent, 2(0.8%) are 500-1000 income level, 4 (1.6%) are 1000-2000 income level, 4(1.6%) are Rs.2000-5000 income level and 4(1.6%) are above Rs.5000 income level. Out of the 13(5.2%) female 6(2.4%) are dependent, 2(0.8%) are below Rs.500 income level, 3 (1.2%) are Rs.500-1000 income level, 2 (0.8%) are Rs.2000-5000 income level.

In the 58 and above age group 10 (4%) are male 9 (3.6%) are female. Out of the 10 (4%) male 1 (0.4%) is dependent 2 (0.8%) are Rs.500-1000 income level, 1 (0.4%) are Rs.1000-2000 income level, 4 (1.6%) are Rs.2000-5000 income level, 2 (0.8%) are in the income level of above Rs.5000. out of the 9

(3.6%) female 6 (2.4%) are dependent, 1 (0.4%) is below Rs.500 income level, 1 (0.4%) is Rs.1000-2000 income level and 1(0.4%) is Rs.2000-5000 income level.

From this table we get that out 250 highest no. of 71 (28.4%) female are dependent and lowest 2 are in above 5000 income group. Out of these 250 persons minimum number of male 44 (17.6%) and female 44 (17.6%) are in the age group of 18-28.

We can also say that maximum numbers of are dependent and number of female is higher than male. Maximum number of male 44 (17.6%) whose income is between 1000-2000.

Table 7

Distribution of Persons Having APL & BPL Cards

	APL	**BPL**	**Total**
Total Tribes	2700 (46.55%)	3100 (53.46%)	5800 (100%)
Respondents	147 (58.8%)	103 (41.2%)	250 (100%)

This table is divided into two rows i.e. total tribes and respondents showing the population of APL and BPL holders in the area of Maa Bhandani Haat, Jalpaiguri district.

From this table, it is revealed that population of total tribes in this area are 5800. Out of this population 2700 persons (46.55%) hold APL card and 3100 (53.46%) persons hold BPL card. Out of 250 respondents of Mech Community there are 147 (58.8%) persons hold APL card and 103 (41.2%) persons hold BPL card.

So, it is very clear from this table that among total tribes of this area population of Mech holding APL card are greater than BPL card holder.

Table-8

Distribution of Respondents requiring information of the community in various areas

Age Group	Electricity		Road		Sanitation		Agriculture		Other Occupation		Library		Education		Housing		Computer	
	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F
Up to 18	2 (0 8%)	3 (1.2%)	-	1 (0 4%)	-	-	2 (0 8%)	3 (1 2%)	5 (2%)	5 (2%)	-	-	5 (2%)	10 (4%)	-	-	-	1 (0.4%)
18 – 28	5 (2%)	6 (2.4%)	6 (2.4%)	3 (1.2%)	5 (2%)	9 (3.6%)	7 (2.8%)	5 (2%)	19 (7 6%)	15 (6%)	5 (2%)	1 (0.4%)	10 (4%)	12 (4 8%)	1 (0.4%)	7 (2.8%)	4 (1 6%)	2 (0.8%)
28 – 38	2 (0.8%)	2 (0.8%)	2 (0.8%)	3 (1.2%)	2 (0.8%)	4 (1 6%)	7 (2.8%)	10 (4%)	7 (2.8%)	5 (2%)	-	2 (0.8%)	5 (2%)	6 (2 4%)	1 (0 4%)	3 (1.2%)	-	-
38 – 48	4 (1.6%)	-	-	1 (0.4%)	4 (1.6%)	-	8 (3.2%)	3 (1.2%)	8 (3 2%)	8 (3.2%)	-	-	2 (0.8%)	5 (2%)	4 (1.6%)	3 (1 2%)	-	-
48 – 58	3 (1.2%)	3 (1.2%)	4 (1 6%)	1 (0 4%)	-	3 (1.2%)	6 (4%)	5 (2%)	3 (1.2%)	1 (0.4%)	-	-	1 (0 4%)	-	2 (0.8%)	2 (0 8%)	-	1 (0 4%)
58 & Above	1 (0 4%)	2 (0 8%)	1 (0.4%)	-	3 (1.2%)	4 (1.6%)	6 (2.4%)	2 (0.8%)	-	1 (0 4%)	-	-	1 (0.4%)	-	-	2 (0 8%)	-	-
Total	17 (6.8%)	16 (6.4%)	13 (5.2%)	9 (3.6%)	14 (5.6%)	20 (8%)	36 (14%)	28 (11.2%)	42 (16 8%)	35 (14%)	5 (2%)	3 (1.2%)	24 (9.6%)	33 (13.2%)	8 (3.2%)	17 (6 8%)	4 (1 6%)	4 (1 6%)

Out of total 250 respondents in the age of up to 18 years 2 male respondents (0.8%) and 3 female respondents (1.2%) require information of electricity, 1 female (0.4%) require information of Road, 2 male (0.8%) and 3 female (1.2%) require information of agriculture. 5 male (2%) and 10 female (4%) require information of education.

In the age group of 18-28 years 5 male (2%) and 6 female (2.4%) require information of electricity, 6 male persons (2.4%) and 3 female (1.2%) require information of road, 5 male (2%) and 9 female (3.6%) require information of sanitation, 7 male (2.8%) and 5 female (2%) require information of agriculture, 19 male (7.6%) and 15 female (6%) require information of other occupation, 5 male and 1 female (0.4%) persons require information of library, 10 male (4%) and 12 female (4.8%) require information of education, 1 male (0.4%) and 7 female (2.8%) require information of housing, 4 male (1.6%) and 2 female (0.8%) require information of computer.

In the age group of 28-38 years 2 male (0.8%) and 2 female (0.8%) and 3 female (1.2%) require information of road, 2 male (0.8%) and 4 female (1.6%) require information of sanitation, 7 male (2.8%) and 10 female (4%) require information of agriculture, 7 male (2.8%) and 5 female (2%) require information of other occupation, 2 female (0.8%) require information of library, 5 male (2%) and 6 female (2.4%) require information of education, 1 male (0.4%) and 3 female (1.2%) require information of housing.

In the age group of 38-48 years 4 male (1.6%) require information of electricity, 1 female (0.4%) require information of road, 4 male (1.6%) require information of sanitation, 8 male (3.2%) and 3 female (1.2%) require information of agriculture, 8 male (3.2%) and 8 female (3.2%) require information of other occupation, 2 male (0.8%) and 5 female (2%) require information of education, 4 male (1.6%) and 3 female (1.2%) require information of housing.

In the age group of 48-58 years 3 male (1.2%) and 3 female (1.2%)require information of electricity, 4 male (1.6%) and 1 female (0.4%) require information of road, 3 male (1.2%) and 1 female (0.4%) require information of other occupation, 1 male (0.4%) require information of education, 2 male (0.8%) and 2 female (0.8%) require information of housing. 1 female (0.4%) require information of computer.

In the age group of above 58 years 1 male (0.4%) and 2 female (0.8%) require information of electricity, 1 male (0.4%) require information of road, 3 male (1.2%) and 4 female (1.6%) require information of sanitation, 6 male (2.4%) and 2 female (0.8%) require information of agriculture, 1 female (0.4%) require information of other occupation, 1 male (0.4%) require information of education, 2 female (0.8%) require information of housing.

It can be concluded that majority of the respondents' greater requiring information of the community in occupation and agriculture.

Table 9

Distribution of Respondents Retrieving Information from Different Sources

Age Group	Panchayat	Block Office	Local Market	Media		Tourist	Hospital	Internal	Others	Total	Percentage (%)
				Print	Electronic						
Up to	7 (2.8%)	1 (0.4%)	-	7 (2.8%)	11 (4.4%)	-	2 (0.8%)	6 (2.4%)	1 (0.4%)	35	14
18-28	23 (9.2%)	2 (0.8%)	1 (0.4%)	35 (14%)	41 (16.4%)	-	-	19 (7.6%)	2 (0.8%)	123	49.2
28-38	12 (4.8%)	3 (1.2%)	2 (0.8%)	8 (3.2%)	16 (6.4%)	-	1 (0.4%)	10 (4%)	2 (0.8%)	54	21.6
38-48	14 (5.6%)	3 (1.2%)		7 (2.8%)	19 (7.6%)	-	1 (0.4%)	10 (4%)	1 (0.4%)	55	22
48-58	12 (4.8%)	1 (0.4%)	1 (0.4%)	5 (2%)	12 (4.8%)	-	-	9 (3.6%)	-	40	16
Above 58	7 (2 8%)	-	-	6 (2 4%)	8 (3.2%)	-	-	10 (4%)	-	31	12.4
Total	75	10	4	68	107	-	4	64	6	338	135.2
Percentage	30	4	1.6	27.2	42.8	-	1.6	25.6	2.4	135.2	-

Out of a total 250 respondents retrieving information from different sources in the age group of up to 18, 7 (2.8%) persons know the information from panchayat, 1 person (0.4%) from block office, 7 persons (2.8%) from print media, 11 persons (4.4%) from electric media, 2 persons (0.8%) from hospital, 6 persons (2.4%) from internet and only 1 person (0.4%) from club, farmer group, etc.

In the age of 18-28, 23 persons (9.2%) from panchayat, 2 persons (9.2%) from block office, 1 person (0.4%) from local market, 35 persons (14%) from print media, 41 persons (16.4%) from electronic media, 19 persons (7.6%) from internal and 2 persons (0.8%) from others area, etc.

In the age group of 28-38 years 12 persons (4.8%) from panchayat, 3 persons (1.2%) from block office, 2 persons (0.8%) from local market, 8 persons (3.2%) from print media, 16 persons (6.4%) from electronic media, 1 person (0.4%) from hospital, 10 persons (4%) from internal, 2 persons (0.8%) from others area, etc.

In the age group of 38-48 years, 14 persons (5.6%) from panchayat, 3 persons (1.2%) from block office , 7 persons (2.8%) from print media, 19 persons (7.6%) from electronic media, 1 person (0.4%) from hospital, 10 persons (4%) from internal, 1 person (0.4%) from others area, etc..

In the age group of 48-58 years, 12 persons (4.8%) from panchayat, 1 person (0.4%) from block office, 1 person (0.4%) from local market, 5 persons (4.8%) from electric media, 9 persons (3.6%) from internal etc.

In the age group of above 58, 7 persons (2.8%) from panchayat, 6 persons (2.4%) from print media, 8 persons (3.2%) from electric media, 10 persons (4%) from internal etc.

From the analysis of the above table, it can be seen that greatest percentage of people retrieving information from electronic media and panchayat; and the lowest percentage of people retrieving information from local market and hospital.

Table 10
Distribution of respondent having knowledge of sources of information on family planning

Age Group	Known Sources						Total Known Sources	Unknown
	Neighbour	Family	Hospital	Panchayat	Media	Others		
Upto 18	4 (1 6%)	-	2 (0 8%)	3 (1.2%)	3 (1 2%)	-	12 (4.8%)	17 (6.8%)
18-28	27 (10.8%)	9 (3.6%)	3 (1.2%)	29 (11 6%)	31 (12.4%)	-	99 (39.6%)	25 (10%)
28-38	18 (7.2%)	9 (3 6%)	5 (2%)	22 (8.8%)	9 (3 6%)	-	63 (25.2%)	12 (4 8%)
38-48	12 (4 8%)	5 (2%)	7 (2.8%)	16 (6.4%)	6 (2.4%)	-	46 (18.4%)	18 (7.2%)
48-58	10 (4%)	6 (2 4%)	1 (0 4%)	11 (4.4%)	2 (0.8%)	-	30 (12%)	12 (4.8%)
58 & above	3 (1.2%)	1 (0.4%)	1 (0.4%)	2 (0.8%)	2 (0.8%)	-	9 (3.6%)	14 (5.6%)
Total	74	30	19	83	53	-	259	98
Percentage	(29 6%)	(12%)	(76%)	(33.2%)	(21.2%)	-	(103 6%)	(39.2%)

Out of total 250 respondents upto 18 years age group 12 (4.8%) persons known about family planning while 17 (6.8%) persons known nothing about it. Of the 18 to 28 age group 99 (39.6%) persons are aware about it while 25 (10%) persons have no idea about it. Of 38 to 48 age group 46 (18.4%) persons are known about it, while 18 persons (7.2%) know nothing about it. Of 48 to 58 age group 30 persons (12%) are know about it while 12 persons (4.8%) have no idea about it and above 58 year age group 9 persons (3.6%) know about it while 14 (5.6%) persons know nothing about it. Now out of total population 74 respondents (29.6%) are getting information from neighbour, 30 respondents (12%) from family, 19 respondents (7.6%) having information from hospital, 83 (33.2%) respondents are getting this information from Panchayat and 53 (21.2%) respondents are getting information from Media. Out of total population 259 (1036%) respondents are having information about family planning while 98 (39.2%) persons have no information at all about it.

It has been seen that young generation are more exposed to such information particularly those of the age group of 18 to 22 years and 28 -38 years. The older generation are seemed to have less idea about family planning.

Table 11
Distribution of persons taking advantages of Social Welfare Scheme

Age Group	Indira Abas Yojana		100 Days Work		Rural Sanitation Programme		S.G.R.Y Or Self Help Group		Widow Pension Scheme		Antyodaya Anna Yojana		Mahatma Gandhi Pension Scheme	
	M	F	M	F	M	F	M	F	M	F	M	F	M	F
Upto18	-	-	3 (1.2%)	1 (0.4%)	-	-	-	-	-	-	-	-	-	-
18-28	-	-	14 (5.6%)	13 (5.2%)	1 (0.4%)	-	-	1 (0.4%)	-	-	1 (0.4%)	-	-	-
28-38	-	-	6 (2.4%)	10 (4%)	-	3 (1.2%)	3 (1.2%)	2 (0.8%)	-	-	-	1 (0.4%)	-	-
38-48	2 (0.8%)	-	14 (5.6%)	8 (3.2%)	2 (0.8%)	1 (0.4%)	2 (0.8%)	-	-	1 (0.4%)	1 (0.4%)	1 (0.4%)	-	-
48-58	-	-	7 (2.8%)	2 (0.8%)	4 (1.6%)	-	3 (1.2%)	3 (1.2%)	-	2 (0.8%)	1 (0.1%)	-	-	-
58 Above	-	1 (0.4%)	2 (0.8%)	3 (1.2%)	1 (0.4%)	1 (0.4%)	-	-	2 (0.5%)	-	2 (0.8%)	2 (0.8%)	3 (1.2%)	-
Total	2 (0.8%)	1 (0.4%)	46 (18.4%)	37 (14.8%)	8 (3.2%)	5 (2%)	8 (3.2%)	6 (2.4%)	-	5 (2%)	5 (2%)	4 (1.6%)	3 (1.2%)	-

This table shows that Distribution of person Taking advantages of social welfare scheme. At first we have divided the total respondents into seven classes i.e. Indira Abas Yojana,100Days work, Rural sanitation progamme, S.G.R.Y or Self-Help Group, widow pension Scheme, Antyodaya Anna Yojana, Mahatma Gandhi pension scheme. Then all these classes are further divided into two classes i.e. male and female. Also this table is divided in six different age group i.e. upto 18, 18-28, 28-38, 38-48, 48-58, 58 & above.

Out of total 250 respondents upto 18 years age group 3 male (1.2%) and 1 female (0.4%) respondents are taking advantages of 100 Days work.
In the age group of 18-28 years, 14 male (5.6%) and 13 female (5.2%) are taking advantage of 100 Days work, 1 male (0.4%) is taking advantage of Rural Sanitation Programme, 1 female (0.4%) is taking advantage of S.G.R.Y or self help group, 1 male (0.4%) is taking advantage of Antyodaya Anna Yojana.
In the age group of 28-38 years, 6 male (2.4%) and 10 female(4%) respondents are taking advantage of 100 days work, 3 female (1.2%) respondents are taking advantage of Rural sanitation programme, 3 male (1.2%) and 2 female (0.8%) respondents are taking advantage of S.G.R.Y or self help Group, 1 female (0.4%) is taking advantage of Antyodaya Anna Yojana.

In the age group of 38-48 years, 2 male (0.8%) respondents are taking advantage of Indira Abas yojana, 14 male (5.6%) and 8 female (3.2%) respondents are taking advantage of 100 days work, 2 male (0.8%) and 1 female (0.4%) respondents are taking advantage of Rural Sanitation programme, 2 male (0.8%) respondents are taking advantage of S.G.R.Y or self help Group, 1 female (0.4%) respondent is taking advantage of widow pension scheme, 1 male (0.4%) and 1 female (0.4%) respondents are taking advantage of Antyodaya Anna Yojana.
In the age group of 48-58 years, 7 male (2.8%) and 2 female (0.8%) respondents are taking advantage of 100 days work, 4 male (1.6%) respondents are taking advantage of Rural sanitation programme, 3 male (1.2%) and 3 female (1.2%) respondents are taking advantage of S.G.R.Y or self help Group, 2 female (0.8%) respondents are taking advantage of widow pension scheme, 1 male (0.4%) taking advantage of Antyodaya Anna Yojana.

In the age group of above 58 years, 1 male (0.4%) and 2 female (0.8%) taking advantage of Indira Abas Yojana, 2 male (0.8%) and 3 (1.2%) female respondents are taking advantage of 100 days work, 1 male (0.4%) and 1 female (0.4%) respondents are taking advantage of Rural sanitation programme, 2 male (0.8%) and 2 female (0.8%) respondents are taking advantage of Antyodaya Anna Yojana, 2 female (0.8%) respondents are taking advantage of widow pension scheme, 3 male (1.2%) respondents are taking advantage of Mahatma Gandhi pension scheme.

Through the analysis of the above table, it is found that out of 250 respondents only 2 male(0.8%) and 1 female (0.4%) respondents are having the advantage of Indira Abas yojana, 46 male (18.4%) and 37 female (14.3%) respondents are having the advantage of 100 days work, 8 male (3.2%) and 5 female (2%) respondents are having the advantage of Rural sanitation programme, 8 male (3.2%) and 6 female (2.4%) respondents are having the advantage of S.G.R.Y or self help group, 5 male (2%) and 5 female (2%) respondents are having the advantage of Antyodaya Anna yojana, 4 male (1.6%) and 3 female (1.2%) respondents are having the advantage of Mahatma Gandhi pension scheme.

It is found that greatest percentage of people (both male and female) are taking advantage of 100 days work, and the lowest percentage of people (both male and female) are taking advantage of Indira Abas Yojana.

Table 12

Distribution of persons relating to library awareness

Age group	Awareness			Unawareness		
	M	F	Total	M	F	Total
Up to 18	4 (1.6%)	10 (4%)	14 (5.6%)	6 (2.4%)	6 (2.4%)	12 (4.8%)
18-28	24 (9.6%)	22 (8.8%)	46 (18.4%)	20 (8%)	22 (8.8%)	42 (16.8%)
28-38	10 (4%)	7 (2.8%)	17 (6.8%)	8 (3.2%)	20 (8%)	28 (11.2%)
38-48	8 (3.2%)	3 (1.2%)	11 (4.4%)	17 (6.8%)	16 (6.4%)	33 (13.2%)
48-58	10 (4%)	3 (1.2%)	13 (5.2%)	5 (2%)	10 (4%)	15 (6%)
Above 58	2 (0.8%)	-	2 (0.8%)	8 (3.2%)	9 (3.6%)	17 (6.8%)
Total	58 (23.2%)	45 (18%)	103 (41.2%)	64 (25.6%)	83 (33.2%)	147 (58.8%)

From this table it is revealed that out of 250 respondents only 103 respondents (41.2%) are having awareness regarding library out of which 58 (23.2%) are male and 45 (18%) are female. In the age group of up to 18, there are only 14 respondents (5.6%) who have the information regarding library out of which 4 (1.6%) is male and 10 (4%) are female. In the age group of 18-28 years, 24 male respondents (9.6%) and 22 female (8.8%) are aware of library. In the age group of 28-38 years, 10 (4%) male and 7 female (2.8%) are aware of library. In the age group of 38-48 years, 8 male (3.2%) and 3 female (1.2%) persons are aware of library. In the age group of 48-58 years, 10 male (4%) and 3 female (1.2%) are aware of library. In the age group of above 58 years, only 2 male (0.8%) are aware of library.

So it is cleared that out of 250 respondents 147 persons (58.8%) do not have any information relating to library which includes 64 male (25.6%) and 83 female

(33.2%) respondents. In the age group of up to 18 there are 6 male (2.4%) and 6 (2.4%) female respondents who are totally unaware about library. In the age group of 18-28 years there are 42 respondents (16.8%) who are ignorant about library out of which 22 are male (8.8%) and 42 female (16.8%). In the age group of 28-38 years there are 28 respondents (11.2%) who are ignorant about library out of which 8 male (3.2%) and 20 female (8%). In the age group of 38-48 years there are 33 respondents (13.2%) do not know what the library is. Among them 17 are male (6.8%) and 16 are female (6.4%). In the age group of 48-58 years there are 15 (6%) are unaware of library out of which 5 (2%) are male and 10 (4%) are female. In the age group of above 58 years there are 17 (6.8%) respondents do not have any information regarding library out of which 8 (3.2%) are male and 9 (3.6%) are female.

So it may be concluded that female respondents are much more unaware than male regarding library and most of the respondents belong to the age group of 18-28 years. It is observed that the number of library unaware persons is the most from this table.

Table 13

Distribution of Respondents Having Awareness on Vaccination Programme

Age group	Awareness																Unawareness	
	Polio		T. B		B.C.G		DPT		Mastic		Tetanus		Measles		Hepatitis-B ·			
	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F
Up to 18	10 (4%)	15 (6%)	2 (0.8%)	4 (1.6%)	1 (0 4%)	-	1 (0.4%)	1 (0 4%)	-	-	1 (0.4%)	3 (1 2%)	5 (2%)	9 (3.6%)	-	1 (0 4%)	-	1 (0 4%)
18-28	40 (16%)	34 (13.6%)	17 (6.8%)	14 (5 6%)	8 (3 2%)	6 (2.4%)	4 (1 6%)	6 (2.4%)	-	-	6 (2.4%)	5 (2%)	23 (9 2%)	13 (5.2%)	5 (2%)	1 (0 4%)	3 (1.2%)	7 (2.8%)
28-38	16 (6 4%)	25 (10%)	5 (2%)	10 (4%)	4 (1 6%)	7 (2 8%)	1 (0 4%)	5 (2%)	-	-	2 (0.8%)	6 (2.4%)	6 (2.4%)	16 (6 4%)	-	1 (0 4%)	5 (2%)	5 (2%)
38-48	18 (7 2%)	13 (5 2%)	4 (1 6%)	4 (1 6%)	1 (0 4%)	2 (0.8%)	2 (0 8%)	1 (0.4%)	-	-	2 (0 8%)	4 (1.6%)	8 (3 2%)	7 (2 8%)	-	-	5 (2%)	4 (1 6%)
48-58	11 (4 4%)	1 (0 4%)	3 (1 2%)	-	1 (0 4%)	-	1 (0.4%)	-	-	-	1 (0 4%)	2 (0 8%)	4 (1.6%)	1 (0 4%)	-	-	5 (2%)	11 (4 4%)
58 & above	5 (2%)	-	2 (0 8%)	-	2 (0.8%)	-	1 (0 4%)	-	-	-	-	-	3 (1.2%)	-	-	-	5 (2%)	10 (4%)
Total	100	88	33	32	17	15	10	-	-	-	12	20	49	46	5	3	23	38
Percentage	40%	35.2%	13 2%	12.8%	6 8%	6%	4%	-	-	-	4 8%	8%	19.6%	18.4%	2%	1 2%	9 2%	15 2%

This table shows distribution of respondents having awareness on vaccination programme and divided into main 2 columns, awareness and unawareness. The awareness column is further subdivided into 8 sub columns, Polio, T.B, B.C.G, D.P.T, Mastic, Tetanus, Measles and Hepatitis-B etc.

Out of 250 respondents, in up to 18 years age group 10 (4%) male and 15 (6%) female are aware of Polio, 2 (0.8%) male and 4 (1.6%) female are aware of T.B, 1 (0.4%) male of B.C.G, 1 (0.4%) male and 1 (0.4%) female are aware of D.P.T, 1 male (0.4%) and 3 (1.2%) female are aware of Tetanus, 5 (2%) male and 9 (3.6%) female are aware of Measles, 1 (0.4%) female aware about Hepatitis-B.

In the age group of 18 to 28 years, 40 (16%) male and 34 (13.6%) female are aware of polio, 17 (6.8%) male and 14 (5.6%) female are aware of T.B vaccine, 8 (3.2%) male and 6 (2.4%) female are aware of B.C.G vaccine, 4 (1.6%) male and 6 (2.4%) female are aware of D.P.T vaccine, 6 (2.4%) male and 5 (2%) female are aware of Tetanus vaccine, 23 (9.2%) male and 13 (5.2%) female are aware of Measles vaccine and 5 (2%) male and 1 (0.4%) female are aware of Hepatitis-B vaccine.

In the age group of 28 to 38 years, 16 (6.4%) male and 25 (10%) female are aware of Polio vaccine, 5 (2%) male and 10 (4%) female are aware of T.B vaccine, 4 (1.6%) male and 7 (2.8%) female are aware of B.C.G vaccine, 1 (0.4%) male and 5 (2%) female are aware of D.P.T vaccine, 2 (0.8%) male and 6 (2.4%) female are aware of Tetanus vaccine, 6 (2.4%) male and 16 (6.4%) female are aware of Measles vaccine, 1 (0.4%) female are aware of Hepatitis –B vaccine.

In the age group of 38 to 48 years, 18 (7.2%) male and 13 (5.2%) female are aware of Polio vaccine, 4 (1.6%) male and 4 (1.6%) female are aware of T.B vaccine, 1 (0.4%) male and 2 (0.8%) female are aware of B.C.G vaccine, 2 (0.8%) male and 1 (0.4%) female are aware of D.P.T vaccine, 2 (0.8%) male and 4 (1.6%) female are aware of Tetanus vaccine, 8 (3.2%) male and 7 (2.8%) female are aware of Measles vaccine.

In the age group of 48 to 58 years, 11 (4.4%) male and 1 (0.4%) female are aware of Polio vaccine, 3 (1.2%) male are aware of T.B vaccine, 1 (0.4%) male is aware of B.C.G vaccine, 1 (0.4%) male is aware of D.P.T vaccine, 1 (0.4%) male and 2 (0.8%) female are aware of Tetanus vaccine, 4 (1.6%) male and 1 (0.4%) female are aware Measles vaccine.

In the age group of above 58 years, 5 (2%) male are aware of Polio vaccine, 2 (0.8%) male are aware of T.B vaccine, 2 (0.8%) male are aware of B.C.G vaccine, 1 (0.4%) male is aware of D.P.T vaccine, 3 (1.2%) male are aware of Measles vaccine.

Apart from this awareness there are also some accounts for unawareness about the vaccination programme. In the age group of up to 18 years, 1 (0.4%) female are unaware about vaccination. In the age group of 18 to 28 years, 3 (1.2%) male and 7 (2.8%) are unaware about vaccination. In the age group of 28 to 38 years, 5 (2%) male and 5 (2%) female are unaware about vaccination. In the group of 38 to 48 years, 5 (2%) male and 4 (1.6%) are unaware about vaccination. In the age group of 48 to 58 years, 5 (2%) male and 11 (4.4%) female are unaware about vaccination. In the age group of above 58 years, 5 (2%) male and 10 (4%) female are unaware about vaccination.

From this table it can be seen that no body knows about Mastic vaccine and from 18 years age to 48-58 year age group are aware about Polio and T.B vaccine.

Table 14

Distribution of respondents of taking advantage of medical treatment facilities

Age Group	Homeopathy		Allopathy		Ayurvedic		Others		Total		Grand Total %tage
	M	F	M	F	M	F	M	F	M	F	
Up to 18	5 (2%)	15 (6%)	8 (3.2%)	12 (4.8%)	-	1 (0.4%)	2 (0.8%)	2 (0.8%)	15 (6%)	30 (12%)	45 (18%)
18-28	37 (14.8%)	33 (13.2%)	38 (15.2%)	36 (14.4%)	3 (1.2%)	1 (0.4%)	1 (0.4%)	2 (0.8%)	79 (31.2%)	72 (28.8%)	151 (60.4%)
28-38	12 (4.8%)	21 (8.4%)	15 (6%)	21 (8.4%)	-	-	1 (0.4%)	3 (1.2%)	28 (11.2%)	45 (18%)	73 (29.2%)
38-48	15 (6%)	13 (5.2%)	18 (7.2%)	16 (6.4%)	-	-	3 (1.2%)	2 (0.8%)	36 (14.4%)	31 (12.4%)	67 (26.8%)
48-58	12 (4 8%)	11 (4.4%)	10 (4%)	10 (4%)	1 (0.4%)	-	1 (0.4%)	1 (0.4%)	24 (9.6%)	22 (8.8%)	46 (18.4%)
58 above	7 (2.8%)	7 (2.8%)	11 (4.4%)	7 (2.8%)	1 (0.4%)	-	2 (0.8%)	-	21 (8.4%)	14 (5.6%)	35 (14%)
Total %tage	88 (35.2%)	100 (40%)	100 (40%)	102 (40.8%)	5 (2%)	2 (0.8%)	10 (4%)	10 (4%)	203 (81.2%)	214 (85.6%)	417 (166.8 %)

This table shows the distribution of respondents of taking advantage of medical treatment facilities. At first this table is divided into six different age group i.e. up to 18 years, 18-28 years, 28-38 years, 38-48 years, 48-58 years and 58 above. This table is also divided into four classes i.e. Homeopathy, Allopathy, Ayurvedic and others. Here others consist of quak treatment. Then all classes are further sub-divided into two classes i.e. male and female.

Out of 250 respondents, 45 (18%) persons fall under the age group up to 18 years of whose 15 (6%) are male and 30 (12%) are female. Out of 15 male, 5 (2%) persons take Homeopathy treatment, 8 persons (3.2%) take Allopathy treatment, 2 persons (0.8%) take others category treatment or quak treatment. Out of 30 female, of whose 15 respondents (6%) take Homeopathy treatment, 12 respondents (4.8%) take Allopathy treatment, 1 respondent (0.4%) take Ayurvedic treatment and 2 (0.8%) respondents take other treatment.

In the age group 18-28 years, out of 151 (60.4%) persons, 79 respondents (31.2%) are male and 72 (28.8%) respondents are female. Out of 79 male, whose 37 respondents (14.8%) take Homeopathy treatment, 38 (15.5%) respondents take Allopathy treatment, 3 (1.2%) respondents take Ayurvedic treatment and 1 respondent is taking other medical treatment. Out of 72 female, 33 respondents (13.2%) take Homeopathy treatment, 36 respondents (14.4%) take Allopathy treatment, 1 respondent (0.4%) take Ayurvedic treatment and 2 respondents (0.8%) take other treatment.

In the age group 28-38 years, out of 73 persons of whose 28 (11.2%) are male and 45 (18%) are female. Out of 28 male consists of 12 respondents (4.8%) take Homeopathy treatment, 15 (6%) respondents take Allopathy treatment and 1 respondent (0.4%) is taking other treatment. Out of 45 female consists of 21 respondents (8.4%) taking Homeopathy treatment, 21 (8.4%) respondents taking Allopathy treatment and 3 (1.2%) respondents taking other treatment.

In the age group 38-48 years, out of 67 (26.8%) persons, 36 (14.4%) respondents are male and 31 (12.4%) respondents are female. Out of 36 male whose 15 (6%) respondents take Homeopathic advantage, 18 (7.2%) respondents take Allopathic advantage and 2 (0.8%) respondents take other treatment facilities. Out of 31 female, whose 13 (5.2%) respondents take Homeopathy treatment, 16 (6.4%) respondents take Allopathy treatment and 2 (0.8%) respondents take other treatment.

In 48-58 age group, out of 46 (18.4%) persons 24 (9.6%) respondents are male and 22 (8.8%) respondents are female. Out of 24 male, whose 12 (4.8%) respondents take Homeopathy treatment, 10 (4%) respondents take Allopathy treatment, 1 (0.4%) respondent take Ayurvedic treatment and 1 (0.4%) respondent take other treatment. Out of 22 female, whose 11 (4.4%) respondents are taking Homeopathy treatment, 10 (4%) respondents are taking Allopathy treatment and 1 (0.4%) respondent is taking other treatment.

In the age group of 58 and above years, 35 (14%) persons of whose 21 (8.4%) respondents are male and 14 (5.6%) respondents are female. Out of 21 male, 7 (2.8%) respondents take Homeopathy treatment, 11 (4.4%) respondents take Allopathy treatment, 1 (0.4%) respondent take Ayurvedic treatment and 2 (0.8%) respondents take other treatment. Out of 14 (5.6%) female, 7 (2.8%) respondents take Homeopathy treatment, and 7 (2.8%) respondents take Allopathy treatment.

From the above table it is clear that respondents of 18-28 age group is taking most treatment facilities (60.4%) and above 58 age group is taking lowest medical treatment (14%). It is also found that most of the people is taking Allopathy treatment (80.8%) and lowest no. of the people is taking Ayurvedic treatment and others (quak) treatment (4%).

Conclusion and suggestion:

The present study has been undertaken to explore, analyse and assess the various information needs of Mech community and to find out a way through which the need for information might be available or information might be available or accessible to the said community.

Meches are really a disadvantaged communicy .The development of a community depends on the socio-economic condition, they hold. The upliftment of the socio-economic position of a community comes through the literary and awareness of the facts or information related to their needs or daily-lives.

The study examines different aspects of the life of Mech community at Maa-Bhandani hat. On the basis of the findings and analysis it comes to a conclusion and tries to draft some suggestions which are as follows:-

1. Near about (31.2%) of the population are illiterate. Women illiteracy (20.4%) is considerably high. Adults (58%) are mostly found literate, but both the women and the adults (old aged) persons take great role in maintaining their families.

Therefore, the utmost need is adult education and continuing educational programmes for women. Initiative should be taken to set up education centre for the adults as well as the women (i.e. housewife etc). At the some time, awareness of importance of education should be extended among the community people.

2. The population of children (452) is high in this area .The classrooms in the primary school of this area appear to be overcrowded. The one and only high school is at distant place.

So, there needs mere primary schools and at least one more high school which will be very close to these village.

3. The population of children (452 out of 762) shows that growth of child birth is increasing among the Mech Community at Maa Bhandani Hat.

Meches of this locality (39.2% of total respondents) are still unaware of family planning. People in the age of 18-28 and 30-48 are partially acquainted with birth control related information (29.6%). They are even not fully aware of the sources of information for birth control for family planning. Many still depends on neighbors for such information. Very few (7.6%) are aware of Hospitals as the centre for such information or services.

There fore, it can be said that they need adequate information regarding birth control or family planning. Awareness program should be organized time to time thereon and they should be exposed to sources of information for family planning.

4. This community is not at all well-aquatinted with the health services 1.6% control information from Hospitals and hygiene. They are hardly conscious of their health. There is only one free homeopathic centre in this area. A few only take benefit of that. They still believe in traditional systems if treatment and often go to 'Quack-doctors'.

So health awareness programmes should be organized every now and then .Also there needs at least one primary health care (modern system) centre to serve this area.

5. Most of the people (38.4%) of this community depend on agriculture .Some (very few) deals in business .Few people are associated with more than one occupation. The labors (18.4% female) are again mostly agro-based laborers. But they follow most conventional procedures.

So, it would better if they get proper occupational or professional. There fore they require some sort of occupational or professional training institute.

6. Only few families (negligible) of this area have electricity in their house. Children of those families are studying in school and colleges. Few of them are interested to have information regarding electricity.

Many people (42.8%) collect there required information from electronic media of sources (may be from out side).

Hence, initiative should be taken to provide them electronic connection for betterment of there lives and to help meet their information need.

7. People of this area have to a long distance to reach government offices, market, schools, colleges, etc. the condition of the roads of this locality are too poor. The result is dearth of public transport system.

A smooth and easy transport system can bring a change in the public lives. There fore much care should be taken by the govt. to build roads enhance transport facilities.

8. Most people of this locality get drinking water from the tube wells which are not always hygienic. Infact they are not aware of that. Only a few want information about it.

So awareness programmes regarding that is highly required and necessary steps should be taken to provide them proper drinking water.

9. A few families only have lavatory or bathroom in there houses. Most families do not have such arrangement. They are even less aware of the govt. programmes or services through which they can build such system many even are ignorant of impact (diseases, etc.) of unhygienic sanitary system.

Therefore, they highly required information regarding the programmes or schemes through which they can build sanitary system. Effort should be taken to provide them relevant information and generate awareness among them.

10. A good amount of residents at Maa- Bhandani Haat are old. Women are also in large number. Many of them (28.4%) are unemployed and dependant to their family heads or others. Some women though earn, are in the low income group. Poverty prevails the area (58.8% APL).Though some people are having advantages of welfare schemes like Indira Awas Yojana and 100 days work.

More and more people should be acquainted with the different welfare schemes of the Government through which they can start their own enterprise and earn as well.

Unemployed men and women should be encouraged to form Self Help Group to earn and support their families or little bit. They should be exposed to the information regarding formation and management of Self Help Group.

11. Agriculture is the main occupation of the residents of this area most people are either farmer or agro-based labour or businessman. Farmers still depend on conventional irrigation system, equipments. They hardly have the knowledge of agro-based product or crops. Infact there is no system in this area.

Therefore some sort of training or awareness programs regarding is the storage, marketing or exporting of the agro-products or crops is strongly required for the proper initiative should be taken by the local authorities towards this.

A modern irrigation system should be introduced better yielding of farmlands.

12. Only a few among the Meches at Maa Bhandani Hat have the knowledge of Bank services or Indian Postal Services through which different financial programmes or services are promoted such as loan of financial support , for agriculture , business , small enterprise , etc. small investment plane , etc.

It needs programs to make them, aware of loan service, small investment etc. rendered by different banks and Indian postal services.

13. The library plays or great role in the well being and development of a community. But negligible numbers of people are aware of library services. Again there is no library within the close distance of this village.

The people of this community get less chance to access different print and electronic media through many are interested to do that.

So media services must be made accessible or available to them. A library can be a centre to fulfill such need.

14. In present day context, development and progress of a society or a community in many ways depend on the knowledge and use application of information

technology or computer. But, Meches are hardly exposed to such knowledge. Even more astonishingly only a few in the age group of young generations (about 2%) have shown their interest of having information on computer. Reason may be the lack of awareness about the importance of computer education.

Therefore awareness programmes regarding the importance of computer education should be extensively spread and a computer education centre should be introduced in this locality.

15. Meches at Maa-bhandani Hat though a socially backward or deprived class want to achieve progress or development in coming days. For upliftment of their social, educational condition they need information in various areas (fields).

To satisfy those different information needs, a community library and information centre (CLIC) could set up in this area. The said information centre will collect necessary information or data from various sources , process them and make this information available or accessible to the community member in need .it will collect information or data and create a data base on different area like

1. Occupational information
2. Educational information
3. Health related information
4. Agriculture related information
5. Government programmes and welfare schemes
6. Daily market price
7. News event, etc.
8. Professional training, etc.

The above knowledge base can meet the information needs of this community. Obviously the said centre should have to provision of updating the data base on the basis of user-feedback.

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Information Seeking Behavior of Undergraduate College Students of the Jalpaiguri District, West Bengal- A Case Study

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Abstract

The study attempts to gather the information seeking habits and behaviour of students in colleges, to identify the information sources used by students and to ascertain the problems faced in using the college library. The questionnaire survey method used in the study reveals that informal channels are more frequently used for information gathering. Books are used more than other types of information resources by students. The study focuses on how students utilize the various resources available in the library for fulfilling their academic needs. The findings of the survey are summarized and implications for library are also discussed.

Keywords: Information, Information Behaviour, Information Seeking Behaviour, ICTs, Jalpaiguri

1. Introduction

Higher education institutions like universities, colleges, etc are today recognised by national governments as key agents for social and economic development in view of their inherent capacity to foster knowledge creation, processing and dissemination. Libraries are central to the colleges supplementing their educational goals and meeting the intellectual curiosity of the teachers and learners. Hence, the provision of adequate resources and services in libraries become essential to promote reading among future teachers. More importance is to ascertain whether libraries are fulfilling their objectives or not.

Initially, however, user studies were conducted primarily to evaluate library collection. These were followed by studies of the research habits of individual or groups that would lead to the design of appropriate information systems and services. The present study explores the information seeking behavior of undergraduate students.

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[1] Librarian

2. The Concept of INFORMATION SEEKING BEHAVIOR

2.1 Information

Belkin defined "information as associated with a text which is the generator's modified by (purpose, intent, knowledge of recipient's state of knowledge) conceptual structure which underlines the surface structure (e.g. language) of that text".[1]

2.2 Information Behaviour

Taylor defines "information behaviour as the product of the following elements of the information use environment:

- The assumptions formally learned or not, made by a defined set of people concerning the nature of their work;
- The kinds and structure of the problems deemed important and typical by this set of people;
- The conscious, and perhaps unconscious, assumptions made as to what constitute a solution, or, better said, a resolution of problems, and what makes information useful and valuable in their contexts."[2]

2.3 Information Seeking

Information seeking is a process in which an individual goes about looking for information. It is
a complimentary process to information need. It is a process that requires an information seeker to apply personal knowledge and skills, or what might be called "personal information infrastructures" such as a person's cognitive abilities, his/ her knowledge skills in relation to the problem/task domain, knowledge and skills in general, knowledge and skills specific to a system and knowledge and skills regarding information seeking.[3]

2.4 Information Seeking Behaviour

According to Girja Kumar, "Information seeking behaviour is mainly concerned with who needs what kind of information for what reasons; how information is found, evaluated and used".[4]

3. Objectives

The following objectives are set for the present study:

- To know the type of reading materials/information sources required by the students;
- To examine the information needs of the students;
- To trace out the purpose of the information search;
- To assess the adequacy, availability and accessibility of the library sources and services;
- To identify the problem faced by the students during information collection;
- To assess the extent the library collections and services can satisfy the students.

4. Scope of the Study

This study is an attempt to ascertain the use of the resource and services of libraries of colleges by students in Jalpaiguri district, West Bengal. The scope of study is confined to two degree colleges, namely Maynaguri College and Malbazar Parimal Mitra Smriti Mahavidyalaya.

4.1 Maynaguri College

Nestling in the midst of the open green field in the western fringe of Jalpaiguri district, Maynaguri College has taken an important role in the educational scenario of North Bengal. This seat of education lies 4Km North of Maynaguri Town en route to Malbazar. The college was established on 18th November, 1999. It is a degree college affiliated to the North Bengal University. The UGC has recognised this college under section 2F and 12B of its Act. In spite of its infancy, within a short span of time the college has acquired a good reputation in the field of education of the district. The NAAC has accredited this college with grade-'B'. The college library has rich collection of books of Indian and International publications and has excellent collection of reference books, journals (both print and online), magazines, and newspapers. There are around 15,000 volumes of textbooks and reference books. Library automation started since June 2010. Online journals have been started to subscribe through NLIST programme, INFLIBNET since Feb, 2011.

4.2 Parimal Mitra Smriti Mahavidyalaya, Malbazar

This college was set up in September 19, 1985. It is a degree college affiliated to the North Bengal University. Located in 13.2 acre serene and lush green piece of land in the rural western Dooars, this college become an ideal institute of nurture the intellect for complete transformation of young graduate. During the last two decades, this college has earned a reputation as one of the premier institutions in North Bengal.

The college library is well equipped with text and reference books by both Indian and foreign author. There are at present around 10,000 volumes of text books and a number of reputed and leading journals of various disciplines.

5. Methodology

Closed ended questionnaires were distributed among 500 students of different disciplines of the respective colleges. A random sampling has been done for this purpose. The required data was collected which was further supplemented by informal discussions with the students. Table1 indicates that a total 440 questionnaires responded out of 500 and consisted of 91 students from English, 93 from Bengali, 86 from Political Science, 84 from Geography and 86 from History department.

Table 1: Distribution of Questionnaires

Particulars	Number of responses	Percentage
Number of questionnaire distributed	500	100
Number of questionnaire received	440	88

6. Results snd Analysis

6.1 Frequency of visiting the library:

The frequency of visits to the library by users depends upon the nature of library collections, organization, maintenance and above all, the servicces and cooperation of the library staffs in making use of library resources. Table 2 indicates that, most of the students (33%) visit library '2days in a week' followed by 28% visit the library 'everyday' and 16% visit 'once in a week'.

Table 2: Frequency of visits to the Library

Frequency	Number of responses	Percentage
Everyday	124	28
2 day in a week	145	33
Once in a week	70	16
Once in two week	48	11
Monthly	22	5
Occasionally	31	7
Not at all visited	00	00

6.2 Time spent in the library per week

Table 3 shows that the quantum of time spent by students in the library per week. It is observed that half of the total respondents(50%) spend less than one hour per week, while 34% spend '1-2hrs', 8% spend '2-3hrs' and 6% spend '3-4hrs'. However, only 2% students spend more than four hours in the library.

Table 3: Average Time Spent in the Library

Average Time spent (in hours)	Number of responses	Percentage
0-1	220	50
1-2	150	34
2-3	35	8
3-4	26	6
>4	9	2

6.3 Purpose of using/visiting library

The use of library resources depends upon the forms and media of resources, nature of organization and timely cooperation of the library staff to users. Table 4 indicates that 40% of the students use/visit the library for 'charging and discharging the textbooks', followed by 30% for 'consulting old question paper' and 17% for 'reading newspaper, magazines, etc. for improving general awareness'.

Table 4: Purpose of using Library Resources

Purpose	Number of responses	Percentage
For borrowing and returning textbooks	220	40
Consulting the reference sources	22	4
To consult journal articles	6	1
To consult old question papers	165	30
To read newspapers, magazines for improving general awareness	93	17
Internet Surfing	44	8

6.4 Regarding locating the information resources within the library

Table 5 exhibits that 46% students locate/get their information resources 'with the help of the library staff', followed by 34% and 16% of the respondents get their desired information resources through 'browsing the card catalogue and OPAC' and 'with the help of friends' respectively.

Table 5: Opinion Regarding Location of the Library Resources

Opinion	Number of responses	Percentage
Card catalogue/OPAC	184	34
With the help of library staff	249	46
With the help of friends	87	16
With the help of subject teacher	22	4

6.5 Dependence on different resources of information

Table 6 elucidates that majority of the students i.e. 54% students rely on the textbooks to a great extent. About 23% of the respondents consult 'human sources' such as faculty, librarian, etc. as one of their source of information. 9% of the respondents indicate the use of newspaper, magazines. About 8% of the respondents rely on 'reference books'. Besides, these sources about 6% of the respondents opted for the other sources of information such as internet and journals.

Table 6: Type of Information Resources used most frequently

Type of information resources	Number of responses	Percentage
Textbooks	364	54
Reference Books	54	8
Journals	14	2
Newspapers, Magazines	61	9
Internet	27	4
Discussion with faculty	20	3
Discussion with library staff	135	20

6.6 Satisfaction of academic needs

The respondents were requested to indicate their views regarding to what extent the information resources satisfied their academic needs. Table 7 portrays that about half (50%) of the respondents were satisfied between '25-50%', followed by 21% satisfied their needs in the range of 50-75%. Only 5% of the respondents are satisfied above 100%.

Table 7: Satisfaction of Academic Needs

Degree of Satisfaction	Number of responses	Percentage
Less than 25%	42	10
25-50%	210	50
50-75%	88	21
75-100%	59	14
Above 100%	21	5

6.7 Problems faced by students in finding required information resources

The students were requested to indicate the type of problems they come across in finding required information resources in the library. Table 8 reveals that 27% of the respondents indicate the barrier for collecting the required information is 'all important books are kept exclusively for reference', whereas 32% indicate that 'books are listed in the catalogue but not available during borrowing or reading purpose'. About 20% of the respondent do not regularly use the library due to the library timings are not convenient to them and 12% indicate that they are not getting help from the library staff at all. Only 4% said that required chapters in the books are missing.

Table 8: Problems in Finding Required Information Resources

Opinions	Number of responses	Percentage
Books listed/display in the catalogue but not available during borrowing and/or reading.	207	37
All important books are kept exclusively for references	151	27
Library timings are not convenience	112	20
Non-cooperative attitude of the library staff	67	12
Required chapters in the books are missing	22	4

7. Findings

After the data were analyzed properly, the following findings have been derived:-

i) Frequency of visiting the library by the college students is very low where only 28% of the students do visit it daily. And most of them do visit only 'twice in a week'.

ii) About half of the students spend 'less than one hour' per week and a very poor percentage (2%) of the students spend more than four hours.

iii) A major portion (40%) of the students visit library for the purpose of charging and discharging of books.

iv) Most of the students get their information sources with the help of library staff. This indicates that there is a lack of awareness of using catalogue.

v) A large part of the students (54%) consult textbooks frequently in order to fulfill their academic needs. This is very much interesting to see that about 23% of the students consult with 'human resources' for getting their required information. A very lower section (4%) use Internet as a source of information. So, this study has found out that there are still many more students who do not use internet as one of their sources of information. In fact other sources of information such as journals, newspapers, television are also less reliable to the students. Books however, were considered to be their best sources for acquiring information.

vi) Majority of the students (37%) do not regularly use the library due to unavailability of books during reading or borrowing time. About 27% of the students said that all important books are kept for reference. The lack of convenience of the library timings is another impediment. In this case 20% of the students agree to it. So, this kind of results directly or indirectly discourages students reading habits and encourages reluctantness to the library.

8. Conclusion

From the findings of the study it is understood that there are many problems faced by the students while seeking the information which they need. Most of the students will depend on the library for their study. Therefore, librarians and other library staff must understand information needs and seeking behaviour of the students to re-engineer their services. The overall study emphasizes on the need for a lot of change and development in this college library. Hence, there is a strong need to implement information and communication technologies (ICTs) in libraries to keep pace with the changing information environment to exploit its benefits. The result also reveals that the users are more or less satisfied with library's collection and services. Above all the college authority should take initiative seriously in bringing up good libraries for the betterment of the institutions.

9. Suggestions

Based on the above findings, the following suggestions are made:

i. The present libraries are lacking in user awareness programme. So, user education programme should be conducted from time to time.
ii. Giving practical demonstration in searching of information sources through catalogue (Card/OPAC).
iii. Library timing should also be fixed according to the convenience of the students as far as possible.
iv. There should be adequate amount of documents both foreign and Indian publications.
v. Library should have sufficient infrastructure for providing internet facilities to the students.
vi. The up gradation of the library is necessary to impart modern education to the students.

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[Tutorial Article]

Time Management in Library and Information Centres: Key to Development and Success

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Abstract

This paper reflects on what time management is and its importance to the librarians and Library and Information Centres. It also explains some strategies to be followed to have proper management of time for the librarian. Further, it narrates the various techniques used to attain time management in LICs to achieve its goal and objectives. It concludes with a suggestion to focus on efficiency and effectiveness for the librarian and how library can achieve productivity by eliminating time wasters. It is also observed that time management is an individual choice of applicable strategies: "To be effective, time management must be personal. Librarians must adopt and adapt the various time management techniques to fit their own situations. No particular methodology or techniques works universally.

Introduction

In a nutshell, time management is the ability to manage time using a range of skills, tools and techniques to effectively manage tasks, projects, goals and schedules.

Can time management really be that important in the grand scheme of things? With the myriad other things nagging at a library manager - hiring, training, budgets, collection development, fundraising, customer service, and on and on, does he/she have time to practice good time management? The answer is obvious - what all these things have in common us that they require time. If the librarian doesn't practice time management, she will likely fail at the tasks she must succeed at to be a successful manager.

If a librarian is a poor time manager, she will not have time to thoroughly research her previous annual budget to see where it was short. Consequently, in a rush, she will submit essentially the same budget this year and find herself in the same predicament - too few funds. If a librarian is a poor time manager, she will not spend the time necessary on new employee interviews and will wonder why her staff is so ill-suited to the requirements of the library and why she spends so much time counseling her employees. If a librarian is a poor time manager, she will find herself constantly working just to keep up with the day-to-day requirements of her job, and she will never find the time to develop a vision and a plan for achieving that vision. And, she will be at her job late into the evening, long after the rest of the staff have gone home. And that is the crux of time management.

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[1] Librarian

When deciding if time management is important, consider why you should manage your time. The old adage, "all work and no play makes Johnny a dull boy," is absolutely true. A well-balanced life includes time for things other than work: for things that are much more important than work; family and friends, health and recreation, spiritual development and volunteerism, among others. So, practicing time management at your job is not merely so you get more work squeezed into an eight-hour day, but mostly so you have time for the important things in life. There are plenty of books on how to maintain focus in your life (several are listed in this chapter's bibliography). That is not the topic of this chapter, but it is the reason the tips provided here are so important.

To control your time, you need a very clear understanding of your priorities, not only for a particular day, but also for your job and your life. This requires constant planning, review, and revision. Take time every day to determine what tomorrow's priorities are. Frequently and regularly review the library's mission and goals; make sure that what you do forwards them. Do the same thing with your life: determine what is important, and make sure that you spend time forwarding those things. Focus, have goals, have a plan, and time management will be easier, because you will have some basis for the decisions and choices you will have to make.

This chapter provides some time-tested (sorry, couldn't resist the pun) remedies for the refrain "there's never enough time." However, the most important thing to remember, once you understand that time management is crucial to your mental health, is that no time management plan will work if it doesn't suit your personality. As you read the chapter, decide: will this work for me; how can I modify this concept to fit the way I live; what else can I come up with that fits my unique way of thinking? Try everything, discard what doesn't work, and keep what does. For time management techniques to succeed, you must fit them into your life style, not the other way around.

Just Say NO

Or, if that seems too harsh, practice "Let me think about it." Librarians are service- oriented, therefore, may find it more difficult than other people do to say no to any request. However, you must remember your priorities. You are the manager; your role is different from librarians without management responsibilities. Your staff is hired to provide customer service; your job is to run an effective, efficient library. If you really can't bear to say no to any request (including those from your church or the soccer team), assertiveness training may be good for you.

Often people are uncomfortable turning down a request for one of several reasons: they don't want to appear confrontational, they don't want to seem to be rejecting the requestor, being asked to do things makes them feel important, they feel that saying "no" will stymie their career, or they like being incredibly busy.

- To make saying "no" easier, review your priorities.
- Determine if you are the best person to do the task, based on your priorities, responsibilities and strengths. If not, delegate to an appropriate individual. Delegation requires planning and follow up. It is discussed later in the chapter.
- Don't postpone the decision. Say "no" quickly so the requestor can find someone else to do the task. People appreciate honesty ("No, sorry but I can't do that."). If a person says "yes" but is reluctant or unenthusiastic, odds are they will not complete the task or will do a poor job. So better to say "no" initially and let the requestor find someone who is enthusiastic than to reluctantly say "yes" and do a poor job. It does not leave a good impression of your capabilities or reliability.
- Suggest solutions or alternatives when you say "no." Even if the request does not meet your criteria for what you should spend your time on, you may have some good ideas. Offer them.
- Offer to do some part of the task (review the work product for example).

Make meetings work for you

Meetings can be huge time-wasters if you do not plan them carefully. First, decide if you really need to hold a meeting? If there is a decision to be made, can you make it yourself? Do not form a committee if you can make the decision yourself. If you need to disseminate information would an email work just as well? If a meeting is necessary, limit the attendance to only those who really need to participate.

When you do have a meeting, plan it.

- Put together an agenda and distribute it before hand. Stick to the agenda. If other items come up, table them and add them to the end of the agenda to be discussed in any allotted time remaining at the end of the current meeting, or schedule another meeting, or delegate the item.

- Establish a start and a stop time. Start on time, even if someone isn't there. Don't penalize punctual people and reward tardy people. Control the meeting so that the business is concluded by the stop time. Some people monopolize meetings. It is your responsibility to ensure that everyone gets to speak, and that the long-winded ones get to make their point, but not over and over. You must also ensure that the meeting stays focused on the agenda. It is easy to get off track and reach the end of the meeting time without having accomplished its purpose.

- If you really want a short meeting, don't provide chairs. Have people meet in your office. Don't let anyone sit down. That signals that the meeting is to be a brief one. People will quickly tire of standing, and the business will be concluded in 10 minutes.

Delegate

Know your strengths and weaknesses. Know the strengths and weaknesses of your staff. Delegate tasks when you can. Remember that delegating does two things: it frees your time for things that only you can do and it builds your staff's abilities and self-esteem. Delegation requires some planning and monitoring to be successful.

- Define the project: its purpose, importance, deadlines, and the scope of the delagatee's responsibilities.
- Provide the necessary authority, resources and, support.
- Delegate for results. Let your staff handle projects in their own way. You are after results, not process.
- Review progress and follow-up.

Minimize interruptions

Interruptions are huge time-wasters. At the very least, they break your train of thought. More often than not, you spend precious minutes on something that is not important or urgent. Discourage people from dropping in without an appointment to chat except at appointed times. Establish a time when you are available if anyone needs to see you -- often right after lunch, when most people are least productive, is a good time. People are free to drop in then without an appointment. When someone comes in your office at another time, politely ask the purpose of the visit. Determine if it is important and urgent and needs your immediate attention. If it does not, set up an appointment to meet with them.

Alternatively, establish a door policy. If your door is open, you are available to your staff. If your door is shut, you are available for important things only (its good to let your staff know what sort of things you consider important). And if you absolutely do not want to be disturbed unless the building is on fire or a crime has been committed, hang a "do not disturb" sign on your closed door. If you use this system and are sparing with the use of the sign, staff will generally respect your privacy.

Phone calls are sometimes more demanding than people. Train yourself to let your phone roll over to voice mail. On your message, remind people to be very specific about why they are calling so that when you return their call, you can provide them with the information they are seeking. That way, even if they are unavailable, you can leave them a message with the information they need, thereby breaking the dreaded phone tag loop. Return the courtesy. When you leave a message, be very specific about why you are calling. Return all calls at one time. For example, return the calls you received in the morning right before you go to lunch and return the calls you receive in the afternoon before you go home. If you don't have voice mail, ask someone to screen your calls and take messages, getting enough information so that when you return the call, you are able to answer the inquiry.

Email can be a time-waster or a tremendous time-saver. Read and respond to emails only at designated times during the day, for example at the beginning of the day, before lunch, and again before you leave work. But, email is an excellent way to convey information. It can be more precise than voice mail, the sender and receiver have a record of the communication, more information can be conveyed than through voice mail, and the information can be conveyed at a convenient time.

Plan your day/week/month/year

But in reverse order the best way to ensure that you accomplish the important things is to spend time each day determining what you want to accomplish the next day, or in the next week or the next month. Prioritize your tasks so that if something unexpected comes up (as it inevitably will) the critical things still get finished. Planning, more than any other activity, ensures good time management. The time it takes to plan is well-spent. The makers of daily planners (Day Timer, Franklin Quest, and Day Runner) all have training classes and materials to help you learn to plan effectively. Planning is a very individual thing and what works well for one person may not work for the next person at all, therefore, take advantage of these materials. They offer a variety of ways to plan, knowing that different people think differently.

In general, draw up a daily list of things to do, and prioritize them so you give the greatest time to the truly important tasks. When planning your schedule consider what you know about yourself. Determine what time of day you work best (often in the morning) and do the most difficult tasks then. Do less pleasant tasks before the ones you enjoy - then you "reward" yourself for your earlier hard work. Don't schedule your day to the minute. Leave some unscheduled time each day to accommodate all those unexpected things that always come up. Check off tasks as you finish them. Those checkmarks give you a sense of accomplishment and help keep you motivated. Set aside time each day to plan the next day, and to do long-range planning. During that time, review not only what you accomplished that day and need to get done the next, but what needs to get done in the next week, which of your monthly goals can be done, what part of a long-range goal can be worked on.

Planning is the key, and deserves an entire chapter, not just a couple of paragraphs. If you don't read anything else on time management, spend some time reading about planning and perfecting a system of your own. The characteristics of a successful planning system include that it is not too cumbersome to use, and it works.

Know yourself

- Do more of what you are good at and less of what you are not good at. If you are a whiz at collection development but hate budgets, keep the collection development tasks for yourself, and assign a staff person who likes working with numbers to put together the first draft of the budget. Then review it with her, and assume the responsibility to complete it, understand it, and present it to management, since that is a responsibility of your job. Just because you are responsible for a particular task does not mean that you can not assign it.

- Know when you are most productive. Keep that time sacrosanct. Discourage all interruptions. Work on the tough stuff.

- Know your most effective work style. Is it easier to focus on one project until it is complete or to work on several things in parallel? Do you work better alone or a part of a team? Which method of communication do you prefer: visual (email) or aural (telephone). Use what you know about yourself to make your work climate as amenable to your style as possible. If the work environment is transparent to the worker, getting things done is easy. Not being frustrated about simple logistics makes work easier and ultimately saves time.

Don't Procrastinate

Everyone procrastinates about some things. Determine those unpleasant tasks you'd rather not do, and so put off until they become a crisis. Then, well before they reach a crisis stage:

- Set a deadline, which creates a sense of urgency, whether actual or artificial.

- Do the most unpleasant part first. Then you can look forward to the more enjoyable part of the task, and end the job on a positive note.

- Make a game of it. Turn drudgery into fun.

- Build in a reward, which provides an incentive to finish the task quickly.

Often procrastination is the result of being overwhelmed by the size of the task. Break big tasks into smaller, more manageable pieces that are easily done in several hours or a day. As you do each one, you will soon realize that, small step by small step, you have almost completed the entire huge task.

Organize your office

Poorly organized people spend a great deal of time hunting for files and important papers. Several books outline systems for organizing papers, projects, filing systems, desks, and offices. Again, because this is very personal, one system does not work for everyone. Invest in one of these books and modify the suggestions so they work for you. A book about organization is provided in the bibliography.

The tips provided here are obvious and easy to implement. As you work, you will discover other ways to save time based on your job responsibilities, the organization, even the physical layout of the facility. One last tip: keep a picture in your office of what is really important to you - family, pet, place, whatever is your top priority. It will remind you of why you are working and why you should work smarter, not harder.

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[Tutorial Article]

Information Literacy – an Overview

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Abstract: In this article the concept of Information Literacy (IL) is discussed broadly, which becomes the base for life long learning. Library here plays an important role in providing these skills. IL has gained importance world wide over the last decade. Some of the countries in world have already started information competency programme from their school standard to higher education level. In our country the concept has already emerged and a few IL programme is going on in a scattered way in the higher education level. In this paper some guidelines are also recommended which can be followed by different institutions for implementing structured programme.

Keywords: Information Literacy, Information literate person, Information Competency, Information Skills.

1. Introduction

Information is the key to democracy. The ability to trace out the required information at the required time makes any person satisfied according to their information need. We live in an information society where the development of information technology & telecommunication networks is accompanied by a corresponding increase in knowledge, with a rapidly growing flow of information. In the information society, the role, position and the form of the library as information centre has been revised due to impact of new technologies. The manual library system & services of library has been greatly affected by the use of new technologies in the production, organization & distribution of information. This change is inevitable. The academic libraries are trying to keep pace with those developments by importing new organisational & functional structures that keep abreast of the needs of information society. The application of new technologies in libraries and the acquisition of new sources and methods of information dissemination as well as the provision of library services require the special education of the users in order to take advantage of these sources and services. Information literacy is such a user-oriented service, which helps users to get desired information independently. Since libraries and also library professionals are more involved in providing information sources in electronics and digital form, it is even more necessary to provide proper training & education to users to develop their skills. It is being realised rapidly that for an effective functioning of the democratic world the citizens have to be information literate and they are able to take right decisions for the development of their society. An information literate person is able to recognize and locate when information is needed and is able to use suitably the acquired information.

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[1] Librarian

Throughout the world 'Information literacy' is now a big concept. United Nations Literacy Decade (2003-2012) is going on. National Literacy Mission in India has given stress on 'skill improvement to improve economic status and well being.' National Knowledge Commission in India has also mentioned in its objectives the integration of library and information services with people's daily lives.

Generally libraries are involved in a number of ways in supporting teaching and research in terms of resourcing, reading material, facilitating use of these materials and providing collaborative focus for partnership with other institutions. Actually, they play an important role in promoting information literacy of the students, research scholars and staff members.

2. What is Information Literacy (IL)?

The first public use of the term 'Information Literacy' (IL) occurred in 1974 when Paul Zurkowski, president of the Information Industry Association, introduced the concept of 'Information Literacy' in a proposal submitted to the National Commission on Libraries & Information Science (NCLIS). This is now perceived as seminal moment in the history of IL. The proposal recommenced that a national programme be established to achieve universal information literacy within the next decade. According to Zurkowski, "people trained in the application of information resources to their work can be called information literates. They have learned techniques and skills for utilizing the wide range of information tool as well as primary sources in moulding information solution to their problems." [Zurkowski: 1974: 6]

'Information Literacy' (IL) has been defined in different ways by different persons/groups. However some important and commonly used definitions are given below:

The most commonly cited and used definition is the one adopted by the Final report of the American Library Association Presidential Committee on 'Information Literacy' in 1989: " To be information literate, a person must be able to recognize when information is needed and have the ability to locate, evaluate, and use effectively the needed information". [www.ala.org]

In 1992 Doyle performed a Delphi study that further expanded the above mentioned definition. On the basis of that study, an information literate person is one who:

- "Recognizes that accurate & complete information is the basis for intelligent decision making
- Recognizes the need for information
- Formulates questions based on information needs
- Identifies potential sources of information
- Develops successful search strategies
- Accesses sources of information including computer based and other technologies
- Evaluates information
- Organizes information for practical application
- Integrates new information into an existing body of knowledge
- Uses information in critical thinking and problem solving." [Doyle: Final report to National Forum on Information Literacy]

Since 1992 the term 'Information Literacy' (IL) has been defined in many different ways by different eminent persons, educational institutions, professional organizations. Some of the definitions are quoted here:

Lenox & Walker (1993) defined IL by characterizing the information literate person, one who has the analytical and critical skills to formulate research questions and evaluate results, and the skills to search for and access a variety of information types in order to meet his or her information need. [Lenox & Walker: 1993: 4-5]

The Alexandria proclamation of 2005 on Information Literacy and Lifelong Learning proclaims that Information Literacy lies at the core of lifelong learning. "It empowers people in all walks of life to seek, evaluate, use and create information effectively to achieve their personal, social, occupational, and educational goals. It is a basic human right in a digital world and promotes social inclusion of all nations." [www.infolit.org/2005.html]

However, the most recent definition to the one offered here is that originating in the 2006 Information Literacy Summit: American Competitiveness in the Internet Age in Washington: "The ability to evaluate information across a range of media, recognize when information is needed and have the ability to locate, synthesize, and use information effectively, with print and electronic media. Ultimately, information literate people are those who have learned how to learn." [www.infolit.org/reports.html]

Here we can also mention that though Information Literacy is a much new concept, our father of Library Science Dr. S.R.Ranganathan has used this term in a different way in the 'Five Laws of Library Science'. The term 'information literacy' is not used there, but the concept of five laws is very much similar with the IL concept.

These definitions are examples of the ways Information Literacy extends its area into realms of critical thinking. In the early 1900s, a person who could read, write, and perform simple mathematical calculations was considered literate. Today, in the 21st century, literacy expectations are much more complex than at any other time in the history. One more important thing is that, Information Literacy is about information in all forms. Information may come from another person, from a paper-based magazine or book, report or newspaper, from a digital source such as a database, a search engine or a e-book accessed through a computer, or it may come from any other form of media: film, video, DVD, radio, television, etc.

However, from all the above discussions, we can sum up our own definition regarding Information Literacy. It can be said that Information Literacy is a transformational process in which the learner needs to find, understand, evaluate, and use information in various forms to create for personal, social or global purposes. Actually, Information Literacy is taking up of appropriate behavior to identify needed information, through whatever channel or medium, leading to judicious and right use of information in society.

2.1 Information literacy (IL) and related literacy

Information literacy combines skills and competencies that together make for effective use of information. Information literacy is related with other types of related literacy. But the term should be differentiating with others. Generally, the related terms are: visual literacy, media literacy, computer literacy, network literacy, and last but not the least basic literacy.

Basic literacy: from the perspective of education, 'basic literacy' means the traditional literacy of learning how to read, to write, and to perform numeric calculations and operations. Basic literacy is generally confined within the basic and secondary formal education settings in public or private schools, but sometimes it also learned at home or community centres.

Visual literacy: Visual literacy is defined as the ability "to understand and use images, including the ability to think, learn, and express oneself in terms of images" (Braden & Hortin, 1982, 41). Visual literacy may be divided into three constructs:

- Visual learning
- Visual thinking, and
- Visual communication (Randhawa & Coffman, 1978)

Visual learning refers to "the acquisition and construction of knowledge as a result of interaction with visual phenomenon" (Moore & Dwyer: 1994: 107). Visual thinking involves the ability to "organize mental images around shapes, lines, colours, textures and compositions" (Wileman: 1980: 13). Visual communication is defined as "using visual symbols to express ideas and convey meaning." (Moore & Dwyer: 1994: 109) Visual thinking and visual learning are coming to a person more easily than visual communication.

Media literacy: Media literacy is clearly defined by Hortin as "the knowledge and skills necessary to understand all the mediums and formats in which data, information and knowledge are created, stored, communicated, and presented, i.e. print newspapers and journals, magazines, radio, television broadcasts, cable, CD-ROM, DVD, mobile telephones, PDF text formats, and JPEG format for photos and graphics. (Horton, F: 2004)

Computer literacy: Computer literacy is in general the familiarity with the personal computer and the ability to access and manipulate various word documents with the help of different software tools like word processor, spreadsheets etc. F. Horton defined Computer literacy as: "the knowledge and skills necessary to understand information and communication technologies (ICTs), including the hardware, the software, systems, networks (both local area networks and the Internet), and all other components of computer and telecommunications systems." However, now-a-days computer is such a tool that extends and facilitates our abilities to learn and to process information. Computer literacy is now an integral part of our educational system.

Network literacy: Network literacy is closely related with the term 'Computer literacy'. A person who wants to locate, search and access information from the World Wide Web must be network literate. McClure states that a network literate person is one who:

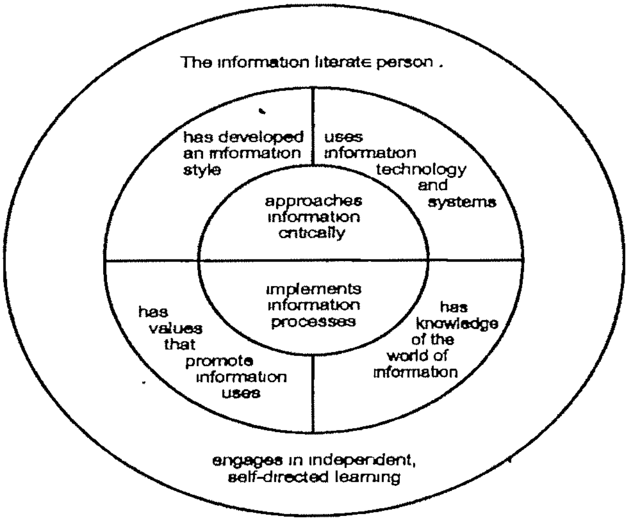
- "Has an awareness of the range and use of global networked information resources and services.

- Has an understanding of the system by which networked information is generated, managed and made available.
- Can retrieve specific types of information from the network using a range of information discovery tools
- Can manipulate networked information by combining it with other resources, enhancing it, or otherwise increasing the value of information for particular situations.
- Can use networked information to analyze and resolve both work and personal related decisions and obtain services that will enhance their overall quality of life.
- Has an understanding of the role and uses of networked information in problem solving in performing basic life activities." [McClure: 1993: 160]

2.2 Information literacy (IL) concept

As we have already discussed that there are several definitions assumed by different associations and individuals. Information literacy can be said the ability to find and use information. Under the component of Information literacy, American Association of School Librarians (AASL) states that: "information literate student accesses information efficiently and effectively, evaluates information critically and competently, and uses information accurately and creatively." [Byerly & Brodie: 1999: 54-82]. We can better explain an information literate person by presenting seven characteristics of an information literate person. According to Bruce seven key characteristics of an information literate person are as follows:

- "[has] developed an information style.
- [uses] information technology and systems.
- [approaches] information critically.
- [implements] information processes.
- [has] values that promote information use.
- [has] knowledge of the world of information.
- [engages] in independent, self-directed learning."


The information literate person .
has developed an information style
uses information technology and systems
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implements information processes
has values that promote information uses
has knowledge of the world of information
engages in independent, self-directed learning

Figure 1: Seven Key Characteristics of an Information Literate Person.

[Bruce: 1995: 158-170]

From the aspect of library, there are several terms that are contributed to the Information Literacy concept. Each of the term has their own semantic meaning and different types of skills, level, the categories of learning and instructional facilitating methods. Some of the Information Literacy related concepts are given below:

- **Information Fluency**- capability or mastering of information competencies
- **User Education**- global approach to teach information access to users.
- **Library Instruction**- focuses on library skills
- **Bibliographic Instruction**- user training on information search and retrieval
- **Information Competencies**- compound skills and goals of information literacy
- **Information Skills**- Focuses on information abilities.
- **Development of Information Skills**- Process of facilitating information skills. [Lau, Jesus: 2006: 8]

2.3 Importance of Information Literacy

The importance of information literacy in our social, cultural and individual life is numerous. Some of the importances are here highlighted:

1. “Enables individuals to find appropriate information for personal and professional problems.

2. Enables individuals to handle the uncertain quality and expanding quantity of life.
3. Can play a key role in understanding of what constitutes plagiarism.
4. Is a prerequisite for participative citizenship, social inclusion, personal, vocational, corporate, and organizational empowerment and lifelong learning.
5. Enables individuals to assure greater control over their own learning and life.
6. Is applicable to all disciplines, to all learning environments and to all levels of education.
7. Is vital for creating knowledgeable citizens and the creation of new knowledge.
8. Is crucial to the competitive advantage of individuals, enterprises, regions and nations.
9. Essential for socio-economic development.
10. Has a positive impact on student performance and success.
11. Leads productive and satisfying lives in a democratic society.
12. Enables individuals to deal with rapidly changing environments.
13. Ensures a better future for the next generation.
14. Essential for survival in the future." [Kurbanoglu: UNESCO Workshop: 2008: 22-23]

2.4 Role of Library in Information Literacy

Any type of library may be an academic library, public library or special library has an important role in information literacy programme. Librarians or information specialists should have a special role in promoting information literacy programme, because the library or information center is a:

- "Repository of knowledge
- Information reservoir in multiple format
- Center with librarian who are information experts
- Department with learning spaces
- Place for interaction with learning peers and teams
- Space for knowledge socialization
- Place with information advisors/reference specialists and consultants
- Center with computer access, processing and communication of knowledge.
- Gateway to the Internet, a world of information." [Lau: 2006: 14]

Information literacy is an important area beyond the domain of libraries and librarianship. So, librarian can act as change agents to help other domains to develop their information literacy policies and programmes.

The teaching of information literacy skills by librarians has two aspects, one philosophical level and the other practical level. In the philosophical level, it is believed by most librarians that information literacy is such a skill that every student should learn, and which will help them in future to be more efficient and effective. At the practical level, information literacy is a "self-defense mechanism" [Campbell, Sandy: 2004: 2]. In educational institutions the ratio of librarian and student is very much low and so it is required that librarian should teach students to become self-sufficient in searching their required information and that is also mostly in classroom settings. However, the information literacy programme is not the sole responsibility of the library and the librarians. This is the responsibility of all the members of a learned society.

3. International Scenario

UNESCO

UNESCO has launched IL programmes with the following objectives:

- Foster the development of an information literate citizenry with the technical and critical thinking skills and abilities needed to identify, acquire, manage and use information to enrich all aspects of their work and personal lives,
- Identify and encourage effective practices in information literacy around the world
- Promote inf. literacy through regional approaches
- Propose innovative curricula about information literacy
- Improve co-operation between govt. officials, researches, educators, librarians and media practitioners.

Africa

There are several notable information literacy programs particularly in Botswana where librarians at the University of Botswana have integrated information skills instruction throughout the curriculum. In South Africa academicians and librarians have cooperated to improve the learning environment for the entire population and information literacy instruction has been used as part of the preparation for life long learning. A noteworthy project with help from the Ford Foundation and Readers Digest Foundation has helped the Western Cape Librarians develop curriculum-integrated information literacy programs in academic institutions. School and public librarians have been exploring the teaching of information skills in public school. At the University of South Africa (Unisa) in Pretoria and at the University of Pretoria several initiatives related to information literacy and teaching information skills to students have been in place for several years.

Asia

In China the government has supported and encouraged the teaching of library and information skills in academic institutions for several years and several national conferences have been held on this topic. Although many Chinese universities offer user instruction, only a small percentage of the students enrolled in higher education are able to participate. As the network and technology environment in China grows the need for information skills instruction is growing as well. The information skills instruction program at Tsinghua University serves as a good model for the future.

Srilanka

In November 2004, a workshop was held in Colombo, Sri Lanka sponsored by IFLA and UNESCO, which examined the concept of information literacy. This workshop was designed to consider various models for the implementation of information literacy in schools, tertiary institutions and to the general public at large. The delegates from seven countries in South and Southeast Asia came together to work on the development of a Problem-Solving Model that could be used across all levels of education to provide a basis for lifelong learning. In this workshop, the new model entitled 'Empowering 8' was developed. This model is a problem solving model (E-8 PSM) that applies to all levels of education from very early childhood to tertiary education. It is a lifelong-learning tool for any age group. [Singh, Jagtar: 2008: 137]

Australia-New Zealand

Academic librarians in Australia and New Zealand have been actively pursuing the connection between lifelong learning and information literacy. They have held several successful national conferences on information literacy organized by the University of South Australia Library and the ALAIA's (Australian Library and Information Association) Information Literacy Special Interest Group. They have also developed strategies to advance information literacy as a profound educational issue for society. Librarians at the University of South Australia have a mandate to ensure that students achieve information literacy. At the University of Technology in Sidney students receive information skills instruction on a regular basis. At the Queensland University of Technology, librarians teach an intensive, advanced course on information retrieval skills to graduate students. It is particularly noteworthy that Australian librarians have been especially concerned with information skills training within the workforce and the professions. The country's emphasis on life-long learning is leading to new partnerships between faculty and librarians to transform teaching and learning. The Australian and New Zealand information literacy framework is derived, with permission, from the Association of College and Research Libraries' (ACRL) Information literacy competency standards for higher education. [www.caul.edu.au]

Europe

During the past three decades in Great Britain academic and school librarians have been actively involved in developing theories and programs related to user instruction and information literacy. The polytechnic universities and schools in particular have experimented with a variety of information skills instruction programs. Among the various methodologies used have been mediated instruction packages and computer-assisted instruction modules. Information skills programs have also been focused on in the open learning and adult education programs. In 1998, SCONUL created a task force to prepare a statement on information skills for higher education. SCONUL proposed seven sets of skills developed from a basic competence in library and information technology skills. The majority of academic librarians are engaged in some type of teaching of information skills.

Academic librarians in Sweden have been involved in user education for more than 20 years, particularly, in areas of engineering, medicine and economics. They have utilized information technology to provide more efficient instruction to beginning students so that librarians can develop advanced electronic information skills instruction for upper-level and graduate students. Librarians at Malmo University, established in 1998, have been working on integrating information literacy into the curriculum to meet the many diverse information needs of their students.

Germany

The increasing demand for support to the introduction of new electronic information system like OPAC, bibliographical databases on CD-ROM etc. various German Universities started user education courses in their curricula. The University of Konstanz (Southern Germany) introduced Information Literacy in certain undergraduate curricula. The Information Literacy program of the University of Konstanz library has been appreciated by the University faculty and viewed as teaching support in the field of research and information seeking skills. Besides 5the undergraduate courses the University Library of Konstanz from 2006 started a semester long credit bearing course for master students of Politics and Management. The course of four credits is launched in the study regulation and is mandatory for all masters' students. The course content for example political science includes full range of basic information literacy viz. Research strategy, knowledge of and searching relevant information sources in political sciences, evaluation, citation, bibliographic management software etc. The University of Applied Sciences, Hanover, offers five credit courses for engineering students recognizing the fact that Information Literacy is an important key qualification for efficient and effective supplement to their main study, i.e. engineering sciences. The course content focuses on ability to recognize the need of information, to formulate search strategy, locate right information, evaluate and use effectively for problem solving. [Singh, N: 2006: 579-582]

North America

In 1989, the American Library Association's (ALA) Presidential Commission on Information Literacy in the United States provided a definition of an information literate person as "one who is able to recognize when information is needed and who has the ability to locate, evaluate and effectively use the needed information." ALA and the Association of College and Research Libraries have worked together to create the Instruction Section which deals with information Literacy concerns.

In 1989, the National Forum on Information Literacy was formed as a collation of more than 80 organizations working to promote international and national awareness of the need for information literacy and encouraging activities leading to its acquisition. The Forum pursues activities in four primary areas. Through its member organizations, the Forum examines the role of information in people's lives. It supports, initiates, and monitors information literacy projects both in the United States and abroad. The Forum actively encourages the creation and adoption of information literacy guidelines by such regulatory bodies as state departments of education, commissions on higher education, and academic governing boards. It works with teacher education programs to insure that new teachers are able to incorporate information literacy into their teaching. [http://www.infolit.org/]

The American Association of School Libraries and the Association of Educational Communications and Technology collaborated in 1998 on Information Power: Building Partnerships for Learning including "Information Literacy Standards for Student Learning from Kindergarten through High School" resulting in nine Information Literacy Standards for Student Learning.

In 2000, the Association of College and Research Libraries (ACRL), a division of the American Library Association (ALA), released the Information Literacy Competency Standards for Higher Education. There are five standards which are directly linked to a host of performance indicators. These standards and performance indicators are often considered the best practices against which institutions of higher education can implement and assess information literacy programs.

[http://www.ala.org/content/navigationmenu/acrl/standards_and_Guidelines /information_literacy_competency_standards_for_higher_education.htm]

4. Indian Scenario

The Information Literacy initiative in India has been made in the year 2005 with the setting of National Knowledge Commission (NKC) to transform India of 21st century in to a knowledge society. In the proposals of NKC, the Government has recognized public libraries playing a pivotal role in disseminations of knowledge. The NKC has submitted its recommendations and it is hoped that these will be incorporated in the 11th Five Year Plan. In the context of the recommendations of the NKC, information literacy seems an effective way to develop knowledge resources and ensure excellence in the field of education, research and capacity building. However, it can also be mentioned, besides Education for All (EFA), National Literacy Mission (NLM) and Total Literacy Campaign (TLC), India is the first country in the worlds to constitute a National Knowledge Commission (NKC).

Academic institutions with libraries are the best centers for developing information literacy skills of the students and staff. Although in India conventional universities have limited scope in user education programmed, few universities have integrated in to their course curriculum. Specially, Agricultural Universities are already ahead with their User Education programmes focused on teaching information literacy skills particularly the students of PGs and PhD.

In 1970's Indira Gandhi Krishi Vishavidhalaya Raipur (Madhypradesh) was the first University which started teaching library skills. In 1976, G. B. Pant University of Agriculture and Technology and Marthwada Agriculture University Maharastra followed the same path. These courses are generally of one or two credit hours and integrated into the academic curriculum the main objective of these courses is to make the Postgraduate and PhD students to be more dependent on information resources for their research work.

In 2006 a survey was done on User Education and Information Literacy programmes of 19 Agricultural Universities in India found that the course content offered to the students has been devised basically to develop the information competency skills of students. The course content has been organized into two parts, one part deals with educating users on information retrieval techniques, use of catalogues and OPAC, classification, arrangement of books, use of national and international agricultural databases, library networks and web resources, library rules, type of libraries and its services. The other part deals with research skills like preparing dissertation and reports, writing scientific references, knowledge of compiling bibliographies, technical jargons like use of abbreviations , footnotes etc. [Singh, N: 2006: 576-578]

Though agricultural universities has started an initiative in teaching information literacy skills, the traditional universities are yet to come with a concrete curriculum based information literacy program to teach the student in higher education programme for developing information skills and to make them competent students and information literate person.

However, few initiatives are now taking place by some Indian traditional universities. Some of them are as follows-

The Department of Library & Information Science, University of Kerala is preparing to place the Syndicate a proposal for implementing an 'Information Literacy Programme' in colleges affiliated to the University. The information literacy package will aim to provide students the basic information about IT tools, to introduce to them electronic sources of information, train them in searching for information stored in a multimedia format, train students to use computer-aided instruction, introduce various online search programs and methods to identify sources of information, handling subject gateways in the Internet and train students to use the 'Online Public Access Catalogue'.

Delhi University Library System (DULS) comprising of more than 30 libraries in its fold caters to the information needs of the entire University community. DULS has started Information Literacy & Competency Programme'(ILCP) with a view to empower the students, researchers and faculty members to seek, evaluate, use and create information effectively and efficiently to achieve their educational, social, occupational and personal goals.

Information Literacy and Competency Development Programme in Delhi University Library System has been initiated with following precisely defined objectives:

- To acquaint the users with the power of Internet
- To provide an indication as to what is there on Internet related to their course of study
- To show how web resources could be of immense use in their academic pursuit and research
- To show the usefulness of various multimedia resources on web related on to their syllabi.

- To describe specific features of various data bases being subscribed by DULS

- To promote the use of subscribed databases in academics and research.

- To acquaint the users with the use of various search techniques to retrieve relevant information.

- To recognize the need for information, and to evaluate, organize, interpret, and communicate information in all its formats;

- To promote that Information Competency is for participants' academic and vocational success and for lifelong learning.

- To provide course-integrated instruction in collaboration with the faculty and in alignment with course objectives.

- To establish a direct interaction between users and library professionals.

The ILCP of DULS has been carried out in various departments of the University like- Department of Economics, Department of Geography, Department of Sociology, Department of Commerce, Department of Philosophy, Department of Psychology, MBA etc.

Understanding the importance of Information Literacy, the Central Library of IIT Madras is deeply engaged in information literacy activities through bringing out various brochures, pamphlets, factsheets, tutorials, conferences, invited talks, specialized presentation for the faculty, students, industries, library staff, and librarians.

In the year 2005, an international workshop to promote Information Literacy in South and south East Asia is being held at the Punjabi University in Patiala, India, with the support of UNESCO and IFLA, AusAid and the World Bank. The aim of the workshop was to develop information skills for learning among the students from the school level so that they can become in future independent learners and critical thinkers. This workshop was the Part II of 'Empowering 8' model, which was previously held in November 2004 in Colombo, Sri Lanka. The following new resolutions were initiated at the IFLA-UNESCO Patiala Workshop 2005:

1. "That the Indian Library association advocate the establishment of a National Advisory Board for Information Literacy as one of the major components of the Knowledge Commission of India.
2. That the national Library Associations of India (ILA, IASLIC, SS, IATLIS) and regional library associations should undertake conferences, workshops and short-term training programmes on a regular basis to implement the concept and practices of Information Literacy across all the states.
3. That each Director of a University Library in the south Asia Region be urged to develop and implement an Information Literacy Policy statement in their institution.

4. That each Director of a University Library be encouraged to adopt selected school libraries as pilot projects to develop the appropriate networks for Information Literacy programmes through their Faculties of Education, Libraries and Information Departments, and Adult & Continuing Education sections.
5. That the Library associations in each country in South and South East Asia solicit the Ministry of Education in each country to develop selected model or pilot schools in their region to demonstrate the application of Information Literacy principles and methodology.
6. That a state-of-the-art research report on the present scenario of Information Literacy in the Indian Universities and Colleges be prepared through the submission of a project proposal to UNESCO and/or IFLA.
7. That each Director of a University Library be urged to conduct training programmes on the application of the concept of Independent learning Skills for Lecturers and Library Staff.
8. That each Director of a University Library be urged to enable their staff to work closely with the existing faculty members to integrate the 'Empowering 8 Problem Solving Model' as part of any future departmental curriculum, revision process.
9. That each Director of a University Library be encouraged to consider establishing Resource-Based Learning Centers as part from the main library network for each of their Faculties.
10. That Ministries of Education be urged to develop a scope and sequence of information skills for learning across the curriculum for all students.
11. That Ministries of Education be urged to integrate information literacy skills in the curriculum of primary & secondary schools, and for all teacher-education programs." [Singh, Jagtar: 2008: 139-140]

However, it can also be mentioned here, besides Education for All (EFA), National Literacy Mission (NLM) and Total Literacy Campaign (TLC), India is the first country in the worlds to constitute a National Knowledge Commission (NKC).

5. Recommendations and Suggestions

As we have noted Information Literacy is a set of skills which enable a person to be competent enough to handle, access and use those resources on their own. In western countries a huge progress happened in the concept of information literacy. The universities of different countries arrange separate training programmes for information literacy. To make the user information literate some of them have included this concept in the curriculum starting from school level of their education system. In India, though some agricultural

Universities have started this practice, but in general traditional Universities still do not take up this concept as a whole. Delhi University Library System (DULS) has taken an initiative by implementing Information Literacy Competency Programme (ILCP). They have defined some objectives of their programme. For successful information literacy programme there must be a clear and defined structure and that structure must be standerdised one. In this present study, we recommend some guidelines which can be followed by different institutions for implementing structured programme. We can suggest some training programmes in a structured way and on a regular basis to make the users aware of the following:

- To introduce the library and its various sections.
- To make them aware of various services.
- To make them aware of recent documents added to the library.
- To help them to use the Internet successfully
- To make them aware of the need of information.
- To make them familiar with different types of sources of information
- To accesses the information efficiently and effectively
- To make a separate corner in the library named as 'Information Literacy Section'
- To make an arrangement for visually challenged people. Because information is for all. So, there should be modern equipments for those special groups of people. The arrangement for special software should be there, so that they can retrieve information from web resources.
- To make the library building for all, from normal to physically challenged people, all of them should access information from the library.
- How to evaluate the information and how to incorporate relevant information into knowledge base
- How to classify, store, re-draft already collected information
- Expanding and creating new knowledge base by integrating prior knowledge
- To make them aware of various types of search strategies to explore different types of databases to access relevant information.
- To make the users proficient in web resources.
- To make them aware of various databases subscribed by institutions and their search processes
- To make them aware of the need for information.
- To make them aware of various types of ethical and legal issues relating to information and information technology. They should

be familiar with the copyright laws (national and international both) and plagiarism of information.

- To provide the concept information literacy in the Curriculum as a mandatory one. As Delhi University Library System suggests 'course-integrated instruction in collaboration with the faculty and in alignment with course objectives'. It will help the students to learn how they can use the library resources effectively.
- Collaboration and cooperation between faculty and librarian is needed to make IL programme a success. A good relation between users, library professionals and teachers is also welcome.

For successful implementation of information literacy the above mentioned measures can be taken. It can be a first step to take an initiative to run a successful information literacy training programme.

6. Conclusion

At the end of this study, it can be said that in Information Literacy is not a new concept in the library perspective. It already exists in the library by different concepts like user education, bibliographic instruction etc. Though, information literacy is a much bigger concept.

However, it is not possible to conclude the present discussion without giving any reference to our father of Library Science Dr. S.R.Ranganathan. He has enunciated the famous 'Five Laws of Library Science'. Amongst the five laws the second law is 'Every Reader His/her Book'. This law has a great similarity with the information literacy concept. Information literacy is a user-oriented service, which helps users to get desired information independently. The main idea of the second law is that every reader should get their information. Information should be for all. Ranganathan said "if books are tools of education, the law 'Every Person His or Her Book' presupposes the concept 'Education for Every Person'. This is the core idea of information literacy or competency concept. An information literate person will be able to recognize and locate when information is needed and will be able to use suitably the acquired information. That means they will be educated in such a way so as to they can access their needed information independently in future. The second law has also given instruction regarding the location of University library. 'The orientations of the University buildings can be so made that all the departments virtually have the whole library system at their elbow.' This concept we have already mentioned in our recommendations part. The second law has also given stress for the maintenance of certain types special libraries like library for visually challenged people. So that all types of people in our society can get access to information from the library.

Yet we can conclude it in saying that information literacy at present is an essential concept in information society. It should be included in the curriculum of different courses of our traditional universities. The inclusion of information literacy training programme can create more independent learners and more responsible citizen. The LIS Schools should redesign their course curriculum accordingly. In this context LIS professionals have an instructional role to perform. It is also just not sufficient for the users to be able to use the libraries and the information they provide. They must be information literate with skills to be able to identify, locate and use all kinds of information as per their need even after leaving the University.

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[Tutorial Article]

Consortia Approach for Accessing of E-Journals with Special References to N-LIST Consortium

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Abstracts

Publishing of e-journal around the world have brought the revolution in scholarly journal publication, subscription, access and delivery procedure. E-journals offer a variety of possible benefits to libraries and end-users. It gives the facilities of several simultaneous access to the same issue, remote access, in-built searching facilities, multi-media capabilities and increase storage capacity with less physical space. For the above reasons e-Journals have become the largest and fastest growing areas of the digital collections for most of the libraries which buy licensed e-journals from different publisher and providers. Library consortia are one of the most successful ways for libraries to subscribe e-journals. University libraries in India are accessing e-journal under UGC-INFONET e-journal Consortium and different engineering & technological institute accessing e-journals under INDEST-AICTE Consortium. For cross subscription of e-resources between these two consortiums, N-LIST was introduced. This paper highlights the objectives, benefits and the available e-resources of N-LIST consortium.

Keywords

E-journal, INDEST-AICTE, N-LIST, On-line journals, UGC-INFONET

1. Introduction

E-Journals have been revolutionizing the format of the recorded knowledge and become the major growing areas of the digital collections for most of the libraries. In these network environment users wants electronic information services from the libraries. This changing situation in library environment has arisen for the need and use of e-journals along with print version. Few years ago there are only few numbers of e-journals available but now there thousands are available and the growth rate is also very high. It gives full text access to scholarly publications in electronic version and sometime both print version and electronic version is available to its end users. The consortium offers the opportunity for providing access to a broader and deeper range of articles to the users. University libraries in India are accessing e-journals through UGC-INFONET e-journal Consortium and the technical institutes accessing through INDEST-AICTE Consortium. For cross-subscription to e-resources amongst technical institutions, universities and colleges the project entitled "National Library and Information Services Infrastructure for Scholarly Content (N-LIST)" has been introduced and jointly executed by the UGC-INFONET Digital Library Consortium, INFLIBNET and the INDEST-AICTE Consortium, IIT Delhi.

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[1] University Research Fellow

2. What is E-Journal

There are no standard and accepted precise definitions of an Electronic Journal. Often e-journals are called [3]

- Virtual journals,
- Paperless journals,
- On-line journals,
- Scholarly electronic journals,
- Networked journals,
- Electronic Serials or E- Serials,
- Electronic Periodicals and
- CD-ROM journals etc.

Basically e-journals is one which is available in electronic form can be accessed using computer and communication technologies and which has the features of a journals, magazines or newsletters.

3. Advantages of Using E-Journals[1,6]

- A large collection of e-journals can be shared in real time.
- Easy to make copies.
- An electronic journal is lot quicker to browse or search.
- It provides all time (24X7X365) access facility.
- Easy for further distribution.
- Less physical space is required for storing information.
- Many users can access more number of journals at a time.
- The subscription costs of the printed journals are almost increasing every year. But the cost of electronic journals are likely to be cheaper since there are less production and distribution cost than printed materials.
- The speed of publication and delivery of the e-journal issues is much faster than the print version.
- Inclusion of audio and video base text in the journal issues is possible.
- Help in minimizing the problems related to the conservation and preservation of journal.

- Alerting the users regarding the publication of new issues and articles of their interest becomes easier in electronic media.

4. Disadvantage of Using E-Journals

- Technological barriers.
- The initial cost is very high.
- Lack of IT skills among library staff member for handling the e- journals.
- Lack of awareness on IT skills for usage of e-journals.

5. Procedure of Accessing E-Journals

A variety of formats of E-Journals are available, like: [6]

- ASCII Text,
- HTML and
- PDF

These formats are access from different access models. Like: [6]

1. Registration for free online access offered in combination with print subscription,
2. Licenses for individual journals titles negotiated directly with publishers,
3. Aggregation of journals compiled by third party vendors and
4. Consortium licenses.

The above access model can be executed by the following two ways. [6]

1. By using user ID and password provided by the publishers and
2. Through IP authentication.

For a wider user services in the libraries like different campus-wise use, IP based access is generally ideal. Some publishers also offer both the above mentioned access options. The decisions are mainly depends on the publisher's policy on online access and how much restriction they will impose.

6. Consortia Approach for Subscription of E-Journals

A library consortium is a group of two or more information agencies or libraries which have formally agreed to coordinate, cooperate or consolidate certain functions to achieve mutual objectives and benefits and to fulfill certain similar needs, usually resource sharing. Consortia may be formed on a local, regional, national, or on a subject basis. It offers different benefits for libraries.

1. Reduce the subscription cost.
2. Better terms and agreement for subscribed e-journals.
3. Immediate access of e-resources which previously unsubscribed.
4. Single window services for access of large number of e-resources.
5. Developing common resources databases.
6. Reduced storage costs.
7. Better search facilities.
8. Improve scope for developing a union catalogue among participating libraries.

Some of the successful and active library consortia, setup so far in India are given below. Following table also consist their URL's, Year of starting, Subject Orientation and funding Organisation: [6]

Sl No	Name of the Consortium	URL	Year of starting	Subject Orientation	Funding Organisation
1	UGC Infonet E-journal consortium	http://www.inflibnet.ac.in/econ	December, 2003	Multidisciplinary	UGC
2	Indian National Digital Library in Engineering Sciences and Technology (INDEST) Consortium	http://paniit.iitd.ac.in/indest/	2003	Sciences and Technology	The Ministry of Human Resource Development
3	Forum for Resource Sharing in Astronomy and Astrophysics (FORSA)	http://www.ncra.tifr.res.in/library/forsaweb/index.htm	29 July, 1981	Astronomy & Astrophysics	Raman Research Institute, Bangalore
4	Council of Scientific and Industrial Research (CSIR e-journal consortium)	http://www.niscair.res.in/ActivitiesandServices/MajorProjects/majproj.htm#ejournalconsortia	2001	Pure Science	CSIR
5	IIM (Indian Institute of Management) Consortium	http://www.iimahd.ernet.in/ http://www.iimb.ernet.in/ http://www.iimcal.ac.in/ http://www.iimidr.ac.in/ http://www.iimk.ac.in http://www.iiml.ac.in	2000	Management	IIM
6	National Library and Information Services Infrastructure for Scholarly Content (N-LIST)	http://nlist.inflibnet.ac.in	4th May, 2010	General & Sciences and Technology	UGC & INFLIBNET

7. N-List (National Library and Information Services Infrastructure for Scholarly Content) Consortium

N-LIST is being jointly introduced by the UGC-INFONET Digital Library Consortium, INFLIBNET Centre and the INDEST-AICTE Consortium, IIT Delhi. This project sanctioned by the Ministry of Human Resources Development (MHRD) under its National Mission on Education through ICT provides for access of electronic resources to govt. / govt.-aided colleges and cross-subscription to e-resources amongst colleges, technical institutions and universities. This programme along with other consortia initiatives would effectively serve the scholarly content requirement of entire nation. The initiative would effectively bridge the digital divide and help the nation to move towards an information-rich society.

Access to e-resources of these consortia for subscribing institutions is IP-enabled on static IP addresses assigned by ISPs to the institutions. However, most colleges do not have static IPs. Therefore, The INFLIBNET Centre took the responsibility of providing access to e-resources to all the registered colleges through proxy servers deploying suitable authorization and authentication mechanism. It had to be ensured that individuals (including students, researchers, staff and faculty) from colleges and other beneficiary institutions should have direct access to e-resources with ability to download articles from journals and chapters from books directly from publisher's website once they are duly authenticated as authorized users through the authentication mechanism deployed at the INFLIBNET. As on 16th November 2011, a total number of 1933 colleges have registered. Out of them 1563 Govt./Govt.-aided colleges covered under the 12B Section of UGC Act and non-aided colleges are 370.

7.1 Objectives of N-List

The N-LIST programme has initiated to providing access of e-resources to colleges. Expenditure for subscription to e-resources for more than 6000 colleges those covered under the section 12B of the UGC Act is being proposed by the Ministry of Human Resource Development (MHRD) under the national mission on education through ICT. Other colleges (covered under section 2F of the UGC Act) are invited to join the consortium by paying Rs.46,000/- only towards annual subscription to all e-resource and membership fees.

Whatever following are the main objectives [2, 4]

a. Cross-subscription to e-resources subscribed by the two Consortia, i.e. subscription to INDEST-AICTE resources for universities and UGC-INFONET resources for technical institutions.

b. Responsibility for INFLIBNET Centre, Ahmedabad are
   1. To subscribe and provide access to selected e-resources to 6,000 Govt/ Govt.-aided colleges and monitor its usage.
   2. To act as a Monitoring Agency for colleges and evaluate, promote, impart training and monitor all activities involved in the process of providing effective and efficient access to e-resources to the colleges.
   3. To develop and deployment of appropriate software tools and techniques for authenticating authorized users.

c. Responsibility for The INDEST and UGC-INFONET are jointly responsible are
   1. To subscribe and provide access to selected UGC-INFONET e-resources to technical institutions (IITs, IISc, IISERs and NITs) and monitor its usage.
   2. To subscribe and provide access to selected INDEST e-resources to selected universities and monitor its usage.

8. E-Resources Available Through N- List Consortium

Following are the e-resources available through N-LIST consortium.

Electronic Journals [4]

SI. No.	E-resources /Publishers of Electronic Journals	Publishing Country	No. of Journals
1	American Institute of Physics	USA	18
2	American Physical Society	USA	10
3	Annual Reviews	USA	33
4	Cambridge University Press	UK	224
5	Economic and Political Weekly	India	1
6	Indian Journals.com	India	150
7	Institute of Physics	UK	46
8	Oxford University Press	UK	206
9	Royal Society of Chemistry	UK	29
10	Wilson Omnifile	USA	3000
Total			3,717

Electronic Books [4]

SI. No.	E-resources /Publishers of Electronic Books	Publishing Country	No. of Books
1	Ebrary	USA	68,800
2	Oxford Scholarship	UK	902
3	NetLibrary	USA	936
4	NetLibrary (open access books)	USA	3,500
Total			74,138

9. Conclusion

In the age of ICT different techniques have been introduced which allow to distribute the documents and information in electronic form. To give better services to the users, libraries are provided e-journals. For subscription of e-journals, consortia have brought great benefits.

N-LIST play a vital role for access of electronic journals to government or government aided colleges and also helps for cross- subscription to e-resources amongst technical institutions and universities in India. It fill-in the serious gap of providing access of e-resources to colleges and effectively bridge the digital divide and help the nation to move towards an information-rich society.

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[Tutorial Article]

Implementation of XML Based Distributed Database on Library System: Extending Capabilities

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Abstract: e-library is a new concept in the field of library science. In e-library system, information is stored in digital format and exchanged over *Internet.* Previously *Electronic Data Interchange* technique was the only way to exchange information between computers. But there are number of disadvantages of using EDI namely rigid transaction set, fixed business rule, high cost and slow pace of standard evolution. XML is a new emerging technique for transporting information over Internet and thus nullifies the disadvantages faced by EDI. Today it's an era of dispersion. So a library can not be concentrated at a single place. It might be at any place of the universe. This concept of spreading a centralized system in a geographically dispersed system is known as *Distributed system.* In this novel work we represent a model that is distributed in nature and information is transferred by means of XML.

Keywords: Data warehouse, distributed database, XML, Data Mining, Oracle XMLDB, CLOB, Library System

1. Introduction:

Concept of library system has been changed over the couple of decades. Immense popularity of computer science attracted library people to adopt the concept of information science. Today's library system doesn't deal only with books, but also deals with computer system. A *digital library* is a library in which collections are stored in digital formats (as opposed to print or other media) and accessible by computers. [1] The digital content may be stored locally, or accessed remotely via computer networks. A digital library is a type of information retrieval system.

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Most digital libraries provide a search interface which allows resources to be found. These resources are typically deep web (or invisible web) resources since they frequently cannot be located by search engine crawlers. Some digital libraries create special pages or sitemaps to allow search engines to find all their resources. Digital libraries frequently use the Open Archives Initiative Protocol for Metadata Harvesting (OAI-PMH) to expose their metadata to other digital libraries, and search engines like Google Scholar, Yahoo! and Scirus can also use OAI-PMH to find these deep web resources. [2]

The advantages of digital libraries as a means of easily and rapidly accessing books, archives and images of various types are now widely recognized by commercial interests and public bodies alike. [3]

Traditional libraries are limited by storage space; digital libraries have the potential to store much more information, simply because digital information requires very little physical space to contain it. As such, the cost of maintaining a digital library is much lower than that of a traditional library.

A traditional library must spend large sums of money paying for staff, book maintenance, rent, and additional books. Digital libraries may reduce or, in some instances, do away with these fees. Both types of library require cataloguing input to allow users to locate and retrieve material. Digital libraries may be more willing to adopt innovations in technology providing users with improvements in electronic and audio book technology as well as presenting new forms of communication such as wikis and blogs; conventional libraries may consider that providing online access to their OPAC catalogue is sufficient. An important advantage to digital conversion is increased accessibility to users. They also increase availability to individuals who may not be traditional patrons of a library, due to geographic location or organizational affiliation. [10], [11]

XML allows structured information to be displayed in a web-based format, be it over the Internet, or an organization's own private intranet. This format makes it easy for organizations with different systems to import and export data in a simple format.

Rest of the paper is organized as follows:

2. XML as a transporting Media

2.1 XML- Brief Ideas

The *eXtensible Markup Language (XML)*, standardized by the *World Wide Web Consortium (W3C)* in February 1998, is self-describing, human and machine readable, extensible, flexible, and platform neutral. [8], [9] XML has become the standard format for exchanging information across the networks. The prospects of XML for DW are tremendous. XML is a markup language much like HTML. It was designed to carry data, not to display data. XML tags are not predefined. We must define our own tags.

2.2 Advantages of XML

Although there are number of ways to transport useful information over network, still XML is gaining its popularity day by day because of the below mentioned reasons-

i) *Expressive power*: XML can represent relational data, report formats and semi-structured documents directly without losing information and with uniform syntax.

ii) *Self-describing*: XML can combine data and metadata. Thereby, heterogeneous and even irregular data can be represented and processed without a fixed schema, which may become obsolete or simply get lost.

iii) XML provides a mechanism for representing data as a simple stream of text, allowing easy transmission and retrieval, as well as allowing existing Internet protocols to be used to exchange data between systems. XML allows semi-structured information to be displayed in a web-based format, be it over the Internet, or an organization's own private intranet. This format makes it easy for organizations with different systems to import and export data in a simple format.

iv) It allows data interchange between different computers.

v) It enables smart searches.

The ability to define data structures and deliver it between different systems makes XML particularly valuable to the DW.

3. Storage Mechanism

Native XML databases are databases that store XML documents and data in a very efficient way. [4] [5] As classic (relational) databases, they allow that data is stored, queried, combined, secured, indexed, etc. Native XML databases are not based on tables, but on so-called containers. Each container can contain large amounts of XML documents or XML data, which have some relation between them.

Oracle XML DB simply refers to the set of built-in XML storage and retrieval technologies for the manipulation of XML data. Oracle XML DB provides the advantages of object-relational database technology and XML technology. For example, one of the major problems involved in dealing with XML data from within a relational database is that most XML data is hierarchical in nature, whereas the Oracle database is based on the relational model. Oracle manages to deal effectively with the hierarchical XML data by using special SQL operators and methods that let you easily query and update XML data in an Oracle database. Oracle XML DB builds the XML Document Object Model (DOM) into the Oracle kernel. Thus, most XML operations are treated as part of normal database processing.

Oracle XML DB provides the ability to view both structured and non-structured information as relational data. You can view the data as either rows in a table or nodes in an XML document.

3.1. Storing XML in database-XMLDB

Latest versions of Oracle provide a way to store XML documents directly in the database. XMLDB supported by Database technologies is a way to high performance XML storage and retrieval. . It provides native XML support by encompassing both SQL and XML data models in an interoperable manner.

Oracle uses a special native data type called XMLType to store and manage data in a relational table. XMLType enables us to leave the XML parsing, storage and retrieval to the Oracle database. We can use the XMLType data type just as we would the usual data typein an Oracle database.

With the CLOB XMLType you can store XML documents as a Character Large OBject.

Using the CLOB XMLType storage there is no need for validation of the XML.The XML does have to be well-formed, and it's optional to validate the XML document against an XML schema or DTD yourself.

With this type Oracle implicitly stores the XML in a CLOB column. The original XML is preserved including whitespace. All restrictions on a CLOB column apply also to this XMLType.

XML DB includes the following features:

1) Support for the World Wide Web Consortium (W3C) XML and XML Schema data models.

2) SQL supports to store, query, update, and transform XML data.

3) Helps to perform XML operations on SQL data.

4)A storage-independent, content-independent and programming language-independent infrastructure for storing and managing XML data which provides new ways of navigating and querying XML content stored in the database.

5) XML-specific memory management and optimizations.

The XML documents are stored in database using XMLTYPE datatype. It provides the way to store XML documents in an XMLType column or table. For non-schema-based storage, XMLType offers a Character Large Object (CLOB) storage option. Figure -1 describes the overall architecture of the proposed model.

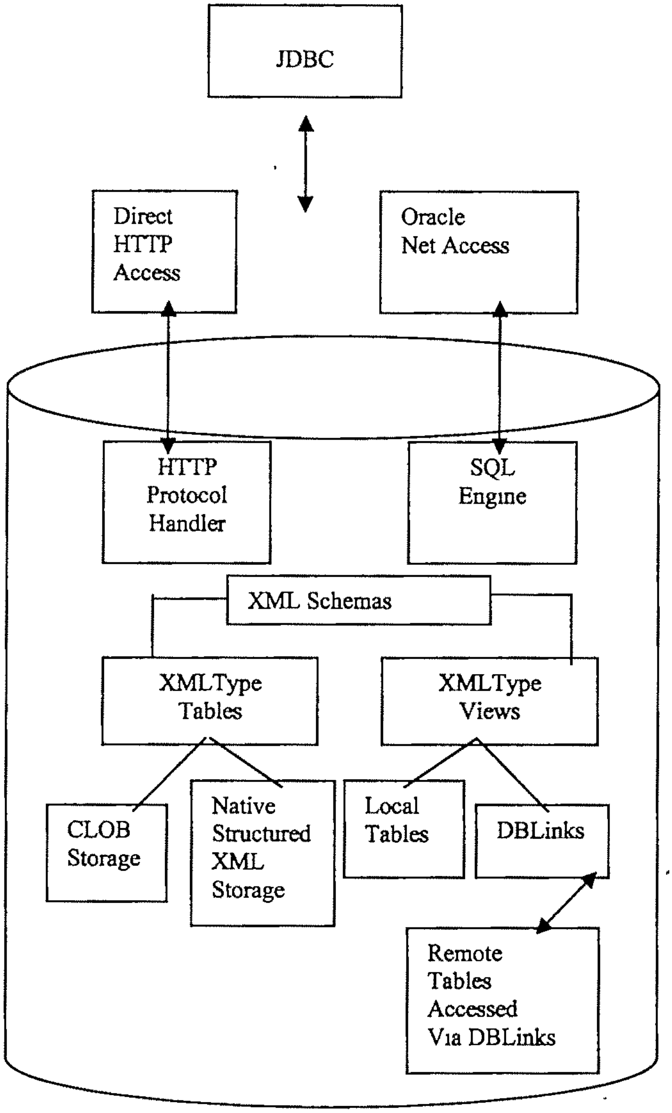


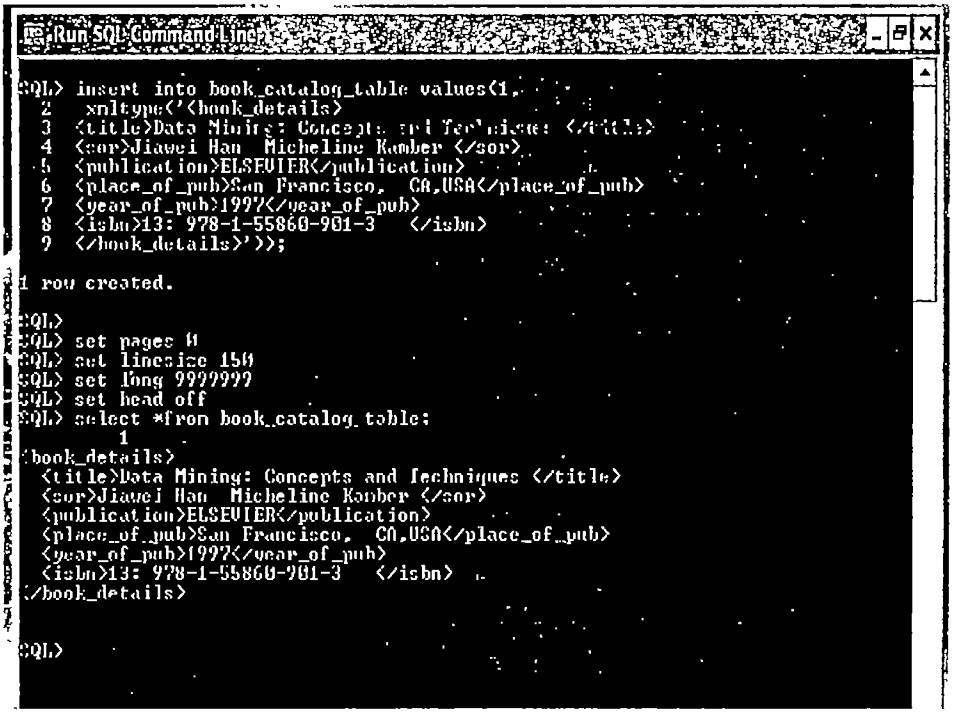
Figure - 1. Oracle XML DB Architecture: XMLType Storage

A particular application can be either schema based or non-schema based. In case of schema based application we can use either CLOB or structured storage. But if the application is non-schema-based then we can store our data in either CLOB values in XMLType tables or views or in files in XML DB Repository folders. In our approach we adopted non-schema based application.

3.2 Creating XML based table

The basic syntax of creating XML based table is as follows:
create table <table_name>(Xml_Column xmltype);

Now consider the example of Book details. The Book catalogue problem comprises of *Book details* as measure and *Title, Publication, Place_of_Pub., Year_of_Pub.* and *ISBN* as dimensions. The following *SQL* statement creates a dimension say *Model:*
create table book_catalog_table (acc_num number (20),book_details xmltype);
After creating the XML document in the database, we have inserted and selected values as follows in Figure 2:



```
SQL> insert into book_catalog_table values(1,
  2   xmltype('<book_details>
  3  <title>Data Mining: Concepts and Techniques </title>
  4  <sor>Jiawei Han  Micheline Kamber </sor>
  5  <publication>ELSEVIER</publication>
  6  <place_of_pub>San Francisco,  CA,USA</place_of_pub>
  7  <year_of_pub>1997</year_of_pub>
  8  <isbn>13: 978-1-55860-901-3   </isbn>
  9  </book_details>'));

1 row created.

SQL>
SQL> set pages 0
SQL> set linesize 150
SQL> set long 9999999
SQL> set head off
SQL> select *from book_catalog_table;
         1
<book_details>
  <title>Data Mining: Concepts and Techniques </title>
  <sor>Jiawei Han  Micheline Kanber </sor>
  <publication>ELSEVIER</publication>
  <place_of_pub>San Francisco,  CA,USA</place_of_pub>
  <year_of_pub>1997</year_of_pub>
  <isbn>13: 978-1-55860-901-3   </isbn>
</book_details>


SQL>
```

3.3 Advantages of XMLDB

Here is a brief list of the benefits offered by Oracle XML DB:

- It facilitates to store huge amount of data in the form of XML in database.
- Data retrieval speed is higher than that of traditional RDBMS.
- We can access XML data using regular SQL queries.
- We can use Oracle's OLTP, data warehousing, test, spatial data, and multimedia features to process XML data.
- We can generate XML from an Oracle SQL query.
- We can transform XML into HTML format easily.

3.4 Advantages of XML for libraries

Despite its great potential, there are only a few places on the Web where the impact of XML on libraries is discussed. There are even less concrete examples of XML projects. XML is currently being used for literary textual documents with a fairly simple structure; it is being used instead of HTML because people can define their own tags. Some points in favour of XML (for libraries) are:

- The structure and markup of an XML document facilitates the creation of document databases, while at the same time XML content can be delivered on the Internet or on a CD-Rom.
- The "meta-data", or data about the document, can be explicitly read from the XML tags, provided that libraries can agree on a standard set of tags. For books and journals, the meta-data is captured in the form of a bibliographic "MARC" record, that has to be created by hand and is added to the library database. XML would thus obviate the need for MARC records.
- There are some standard DTDs (Document Type Definition, an inheritance from SGML meaning the collection of tags of a particular XML application) that were designed specifically for literary scholarly documents (the TEI, Text Encoding Initiative) and scientific articles and books (ISO 12083). These applications can be used with XML. This is also an SGML MARC DTD.

4. Distributed Database

A distributed database system allows applications to access data from local and remote databases. In a homogenous distributed database system, each database is of same type. In a heterogeneous distributed database system, at least one of the databases is of different type. Distributed databases use client/server architecture to process information requests.

4.1 Characteristics of Distributed Database

- Collection of logically-related shared data.
- Data split into fragments.
- Fragments may be replicated.
- Fragments/replicas allocated to sites.
- Sites linked by a communications network.
- Data at each site is under control of a DBMS
- DBMS handle local application autonomously
- Each DBMS participates in at least one global application.

4.2 Advantages of Distributed system

- Data is located near the greatest demand site.
- Access is faster.

- Processing is faster due to several sites spreading out the work load.
- New sites can be added quickly and easily.
- Communication is improved.
- Operating costs are reduced
- It is user friendly
- There is less danger of a single-point failure
- It has process independence

In this paper we consider all the databases (distributed) are homogenous in nature.

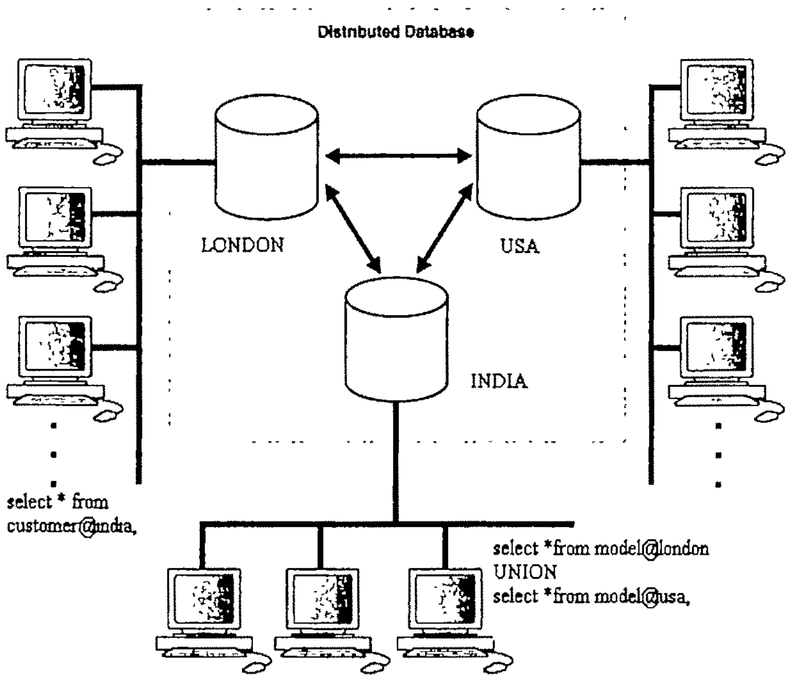


Figure - 3: Distributed XML based databases.

A homogenous distributed database system is a network of two or more same type of databases that reside on one or more machines. Figure 3 illustrates a distributed system that connects three databases: LONDON, INDIA and USA. An application can simultaneously access or modify the data in several databases in a single distributed environment. For example, a single query from 'INDIA' client on local database can retrieve joined data from the *Model* table on the remote USA database and the *Model* table on the remote LONDON database. The above fact has been explained in the Figure-3.

5. Future prospects of the current technology

In library Science, we come across a million of data stored in the database. This type of database is formally termed as Data warehouse [7]. A data warehouse is a repository of information collected from multiple sources, stored under a unified schema. From this huge database we try to find out some meaningful conclusions like Searching, Categorization, Trend, Demand, Indexing based on thought content etc. Therefore in order to get some meaningful outcome we have to go through a process known as Data Mining [6]. Data mining has attracted a great deal of attention in the information industry and in society as a whole in recent years, due to the wide availability of huge amounts of data and the imminent need for turning such data into useful information and knowledge.

Data mining tools perform data analysis and may uncover important data patterns, contributing greatly to strategies, knowledge bases, and scientific and medical research.

In this paper we present an idea that can be broadened to convert a simple database system into promising field called Data warehouse. In addition XML will help structured as well as unstructured information to be displayed in a web-based format, be it over the Internet, or an organization's own private intranet.

6. Conclusion

XML is gaining popularity at a tremendous speed. It provides number of features that makes it suitable for the web based application. Native XML database (XMLDB) is a variation of the XML-database concept which has been accepted for several reasons. This novel work can be expanded to give a shape of Data warehouse. So that we can perform different data mining techniques in order to manipulate library information for varieties of work. In future we have planed to extend the model in such a way so that it should give non-XML output.

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[Tutorial Article]

Theories of Work Motivation and its application to Library and Information Science

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Abstract:

Human relations and part of motivation suppose to be explained with importance in every aspect of library and information science as because it is service oriented organization(Library) and dealing with more sensitive matters as 'users' which are consisting more diverse and complex group of individuals. Today's thinking of human relations and motivation work is the mainly theory of Herzberg's Theory of Motivation and Maslow's Hierarchy of Needs. This tutorial article will explain the various motivational factors and theories like McClelland's Theory of Needs, Theory of "X" and Theory of "Y", Reinforcement Theory, Goal setting theory etc. with special reference to Maslow's theory which enumerates Maslow's hierarchy of needs, describes implications of the theory and at Frederick Herzberg's motivating-hygiene theory which will explain how it is motivating library staff and finally the article will explain the application of Maslow's and Herzberg's motivation theory to library and Information science with suitable examples.

Keywords:

Motivation, Two Factor Theory, McClelland's Theory, Theory of "X" and Theory of "Y", Reinforcement Theory, Goal setting theory, Maslow's theory, Maslow's hierarchy of needs, Herzberg's theory, Herzberg's motivating-hygiene theory, Library and Information Science.

Introduction:

Motivation is a process that starts with a physiological or psychological need that activates a behavior or a drive that is aimed at a goal. Every employee is expected to show increased and qualitative productivity by the manager. To achieve this behavior of the employee is very important. The behavior of the employees is influenced by the environment in which they find themselves. Finally, an employee's behavior will be a function of that employee's innate drives or felt needs and the opportunities he or she has to satisfy those drives or needs in the workplace. If employees are never given opportunities to utilize all of their skills, then the employer may never have the benefit of their total performance. Work performance is also contingent upon employee abilities. If employees lack the learned skills or innate talents to do a particular job, then performance will be less than optimal. A third dimension of performance is motivation.

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[1] Librarian

The following are the features of motivation:

- Motivation is an act of managers.
- Motivation is a continuous process.
- Motivation can be positive or negative.
- Motivation is goal oriented.
- Motivation is complex in nature.
- Motivation is an art.
- Motivation is system-oriented.

Motivation is the reason or reasons for engaging in a particular behavior, especially human behavior as studied in psychology and neuropsychology. These reasons may include basic needs such as food or a desired object, hobbies, goal, state of being, or ideal. The motivation for a behavior may also be attributed to less-apparent reasons such as altruism or morality. According to Geen, motivation refers to the initiation, direction, intensity and persistence of human behavior.

Definition

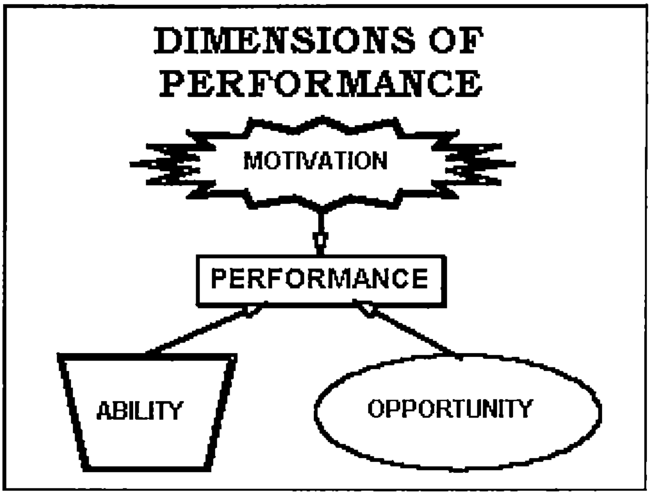
The following definitions of motivation were taken from a variety of psychology textbooks and reflect the general consensus that motivation is an internal state or condition (sometimes described as a need, desire, or want) that serves to activate or energize behavior and give it direction (Kleinginna and Kleinginna,).

- Internal state or condition that activates behavior and gives it direction;
- Desire or want that energizes and directs goal-oriented behavior;
- Influence of needs and desires on the intensity and direction of behavior.

Franken (1994) provides an additional component in his definition:

- The arousal, direction, and persistence of behavior.

Motivation is the inner drive that moves and directs an individual's behaviour towards satisfying his needs and attainment of goals. Motivation to work has been defined as, "a set of energetic forces that originate both within as well as beyond an individual's being, to initiate work-related behaviour, and to determine its form, direction, intensity, and duration" (Pinder, 1984). The meaning of, and relationship between needs, drives and goals are the key elements to understanding the meaning of motivation.



Importance of Motivation:

Most motivation theorists assume that motivation is involved in the performance of all learned responses; that is, a learned behavior will not occur unless it is energized. The major question among psychologists, in general, is whether motivation is a primary or secondary influence on behavior. That is, changes in behavior are better explained by principles of environmental/ecological influences, perception, memory, cognitive development, emotion, explanatory style, or personality or when concepts to motivation are more pertinent. For example, we know that people respond to increasingly complex or novel events (or stimuli) in the environment up to a point and then responses decrease. This inverted-U-shaped curve of behavior is well-known and widely acknowledged (e.g., Yerkes & Dodson, 1908). However, the major issue is one of explaining this phenomenon. Is this a conditioning (is the individual behaving because of past classical or operant conditioning) or a motivational process (from an internal state of arousal), or has there some better explanation? Motivation is different from job satisfaction.

Motivational Factors:

There are several factors that motivate a person to work. The motivational factors can be broadly divided into two groups:

I. MONETARY FACTORS:
Salaries or wages: Salaries or wages is one of the most important motivational factors. Reasonable salaries must be paid on time. While fixing salaries the organization must consider such as:

- Cost of living
- Company ability to pay
- Capability of company to pay etc,

Bonus: It refers to extra payment to employee over and above salary given as an incentive. The employees must be given adequate rate of bonus.

Incentives: The organization may also provide additional incentives such as medical allowance, educational allowance, HRA etc.

Special individual incentives: The company may provide special individual incentives. Such incentives are to be given to deserving employees for giving valuable suggestions.

II. NON MONETARY FACTORS:

Status or job title: By providing a higher status or designations the employee must be motivated. Employees prefer and proud of higher designations.

Appreciation and recognition: Employees must be appreciated for their services. The praise should not come from immediate superior but also from higher authorities.

Delegation of authority: Delegation of authority motivates a subordinate to perform the tasks with dedication and commitment. When authority is delegated, the subordinate knows that his superior has placed faith and trust in him.

Working conditions : Provision for better working conditions such as air-conditioned rooms, proper plant layout, proper sanitation, equipment, machines etc, motivates the employees.

Job security: Guarantee of job security or lack of fear dismissal, etc can also be a good way to motivate the employees. Employees who are kept temporarily for a long time may be frustrated and may leave the organization.

Job enrichment: Job enrichment involves more challenging tasks and responsibilities. For instance an executive who is involved in preparing and presenting reports of performance, may also asked to frame plans.

Workers participation: Inviting the employee to be a member of quality circle, or a committee, or some other form of employee participation can also motivate the work-force.

Cordial relations: Good and healthy relations must exist throughout the organization. This would definitely motivates the employees.

Good superiors: Subordinates want their superiors to be intelligent, experienced, matured, and having a good personality. In fact, the superior needs to have superior knowledge and skills than that of his subordinates. The very presence of superiors can motivate the subordinates.

Other factors: There are several other factors of motivating the employees:

- Providing training to the employees.
- Proper job placements.
- Proper promotions and transfers.
- Proper performance feedback.

- Proper welfare facilities.
- Flexible working hours.

Need and importance of motivation:

Motivation offers several importance to the organization and to the employees:
Higher efficiency
Reduces absenteeism.
Reduces employee turnover.
Improves a corporate image.
Maintains good relations.
Strengthen improved morale.
Reduces wastages and breakages.
Reduces accidents.
Provides facilitates initiative and innovation.

Money as a motivator

It is normally believed that money acts as a motivator. In general the role of money as a motivator depends upon certain factors:

- Money fails to motivate people, when there is no direct relationship between reward and effort.
- Economic conditions of people influence the Importance of money. For poor person, the value of certain amount of money is quite high as compared to rich.
- Money is a significant motivator at lower level of employees level however money may not be a significant factor for senior executives who have already fulfilled their lower level needs.
- Employees are concerned not only wih the amount of money paid to them, but it should be fair and equitable as paid to that of othe employees of same level or status.
- Social attitudes towards money and wealth also decides the motivation to earn more and more.

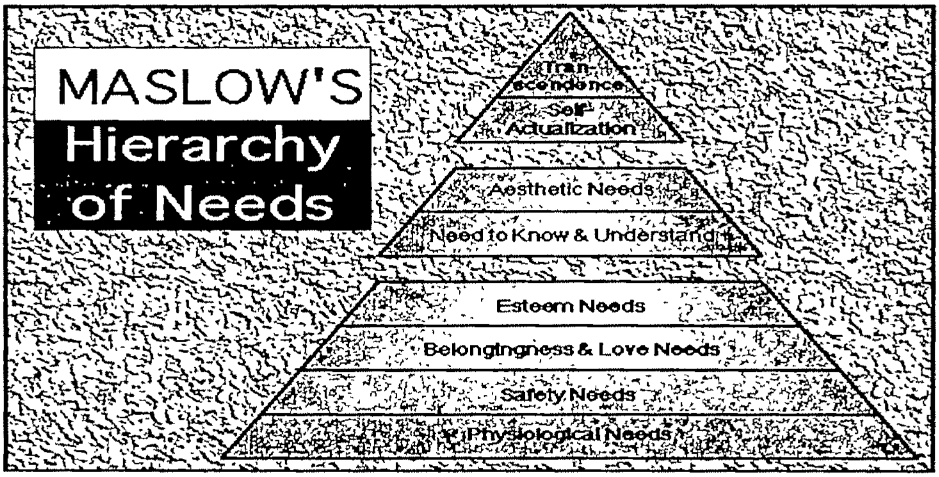
Motivation theories:

There are two distinct types of motivation theory, content based and process based. Each of these theories highlights a different facet of Motivation. Content theories focus on what motivates people. They attempt to explain motivation in terms of needs and specify a variety of needs. Process theories focus on how motivation occurs, these theories explain motivation in terms of the individual's perceptions, beliefs, and expectancies about the attainability and need-satisfying value of work rewards.

Content Theories of Motivation enable us to understand the basic needs that people satisfy by their action. These theories highlight the types of needs that can motivate people. These theories stress that an unsatisfied need results in a driving force toward satisfaction of the need. These theories are concerned with the types of incentives or goals that people strive to attain in order to be satisfied and perform well.

Maslow's-Hierarchy of Needs Theory:

In 1954, Maslow first published Motivation and Personality, which introduced his theory about how people satisfy various personal needs in the context of their work. He postulated, based on his observations as a humanistic psychologist, that there is a general pattern of needs recognition and satisfaction that people follow in generally the same sequence. He also theorized that a person could not recognize or pursue the next higher need in the hierarchy until her or his currently recognized · need was substantially or completely satisfied, a concept called prepotency. Maslow's hierarchy of needs is shown below. It is often illustrated as a pyramid with the survival need at the broad-based bottom and the self-actualization need at the narrow top.



Maslow's hierarchy of needs

Level	Type of Need	Examples
1	Physiological	Thirst, sex, hunger
2	Safety	Security, stability, protection
3	Love and Belongingness	To escape loneliness, love and be loved, and gain a sense of belonging
4	Esteem	Self-respect, the respect others
5	Self-actualization	To fulfill one's potentialities

According to various literature on motivation, individuals often have problems consistently articulating what they want from a job. Therefore, employers have ignored what individuals say that they want, instead telling employees what they want, based on what managers believe most people want under the circumstances. Frequently, these decisions have been based on Maslow's needs hierarchy, including the factor of prepotency. As a person advances through an organization, his employer supplies or provides opportunities to satisfy needs hierarchy on Maslow's pyramid.

This theory was proposed by Abraham Maslow and is based on the assumption that people are motivated by a series of five universal needs. These needs are ranked, according to the order in which they influence human behavior, in hierarchical fashion

- **Physiological needs** are deemed to be the lowest- level needs. These needs include the needs such as food & water. So long as physiological needs are unsatisfied, they exist as a driving or motivating force in a person's life. A hungry person has a felt need. This felt need sets up both psychological and physical tensions that manifest themselves in behaviors directed at reducing those tensions (getting something to eat). Once the hunger is stated, the tension is reduced, and the need for food ceases to motivate. At this point (assuming that other physiological requirements have been satisfied) the next higher order of need becomes the motivating need.

- Thus, **safety needs** -- the needs for shelter and security -- become the motivators of human behavior. Safety needs include a desire for security, stability, dependency, protection, freedom from fear and anxiety, and a need for structure, order, and law. In the workplace this needs translates into a need for at least a minimal degree of employment security; the knowledge that we cannot be fired on a whim and that appropriate levels of effort and productivity will ensure continued employment.

Social needs include the need for belongingness and love. Generally, as gregarious creatures, human have a need to belong. In the workplace, this need may be satisfied by an ability to interact with one's coworkers and perhaps to be able to work collaboratively with these colleagues.

- After social needs have been satisfied, **ego and esteem needs** become the motivating needs. Esteem needs include the desire for self-respect, self-esteem, and the esteem of others. When focused externally, these needs also include the desire for reputation, prestige, status, fame, glory, dominance, recognition, attention, importance, and appreciation.

The highest need in Maslow's hierarchy is that of **self-actualization**; the need for self-realization, continuous self-development, and the process of becoming all that a person is capable of becoming.

Herzberg's Two Factor Theory :

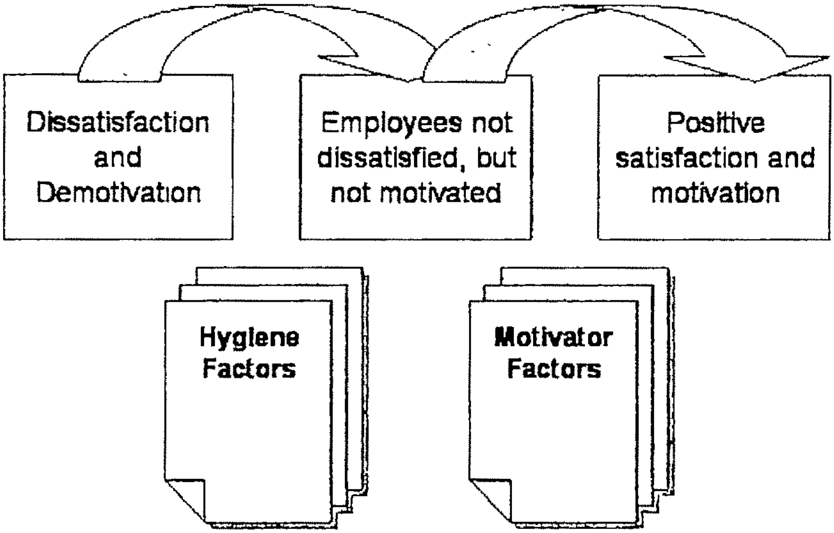
Herzberg's Two Factor Theory, also known as the Motivation-Hygiene Theory, was derived from a study designed to test the concept that people have two sets of needs:

1. Their needs as animals to avoid pain.
2. Their needs as humans to grow psychologically.

Motivator hygiene theory is the most. discussed and controversial theory in literature for the last half century. Herzberg Motivation-Hygiene Theory (M-H) theory is based on the hypothesis that there are two types of motivators. One type which results in satisfaction with the job is called as motivators or satisfiers. The other which merely prevents dissatisfaction is called as hygiene or dissatisfiers according to Herzberg.
Herzberg challenged the uni-scalarity model of job satisfaction that was widely established before his theory.
Herzberg's study consisted of a series of interviews that sought to elicit responses to the questions:

(1) Recall a time when you felt exceptionally good about your job. Why did you feel that way about the job? Did this feeling affect your job performance in any way? Did this feeling have an impact on your personal relationships or your well-being?

(2) Recall a time on the job that resulted in negative feelings? Describe the sequence of events that resulted in these negative feelings.


Dissatisfaction and Demotivation
Employees not dissatisfied, but not motivated
Positive satisfaction and motivation
Hygiene Factors
Motivator Factors

Research Results: It appeared from the research, that the things making people happy on the job and those making them unhappy had two separate themes.

1) SATISFACTION (MOTIVATION): Five factors stood out as strong determiners of job satisfaction:

- Achievement
- Recognition
- Work itself
- Responsibility
- Advancement

The last three factors were found to be most important for bringing about lasting changes of attitude. It should be noted, that recognition refers to recognition for achievement as opposed to recognition in the human relations sense

2) DISSATISFACTION (HYGIENE): The determinants of job dissatisfaction were found to be:

- Company policy
- Administrative policies
- Supervision
- Salary
- Interpersonal relations

- Working conditions

From the results Herzberg concluded that the replies people gave when they felt good about their jobs were significantly different from the replies given when they felt bad. Certain characteristics tend to be consistently related to job satisfaction and others to job dissatisfaction. Intrinsic factors, such as work itself, responsibility and achievement seem to be related to job satisfaction. Respondents who felt good about their work tended to attribute these factors to themselves. On the other, dissatisfied respondents tended to cite extrinsic factors such as supervision, pay, and company policies and working condition. Herzberg proposed that his findings indicated the existence of a dual continuum: the opposite of "satisfaction" is "No satisfaction" and the opposite of "Dissatisfaction" is "No Dissatisfaction.

According to Herzberg, the factors leading to Job satisfaction are separate and distinct form those that lead to job dissatisfaction. Therefore, managers who seek to eliminate factors that can create job dissatisfaction may bring about peace but not necessarily motivation. They will be placating their workforce rather than motivating them. As a result, conditions surrounding the job such as quality of supervision, pay , company policies, physical working conditions relations with others and job security were characterized by Herzberg as hygiene factors, when they're adequate, people will not be dissatisfied ; neither will they be satisfied. If we want to motivate people on their jobs, Herzberg suggested emphasizing factors associated with the work itself or to outcomes directly derived form it, such as promotional opportunities, opportunities for personal growth, recognition, responsibility and achievement. These are the characteristics that people find intrinsically rewarding. It suggests that managers must emphasise achievement, recognition, and growth to motivate people. In order to motivate the employees, managers must ensure that jobs are interesting and challenging to them. He stated job enrichment as one of the most effective methods of motivating employees. But this must involve making a job more responsible and challenging rather than adding tasks to it.

McClelland's Theory of Needs:

According to David McClelland, regardless of culture or gender, people are driven by three motives:

- Achievement,
- Affiliation, and
- Influence.

Since McClelland's first experiment, more than 1,000 studies relevant to achievement motivation have been conducted. These studies strongly support the theory.

- Achievement: The need for achievement is characterized by the wish to take responsibility for finding solutions to problems, master complex tasks, set goals, get feedback on level of success.

- Affiliation: The need for affiliation is characterized by a desire to belong, an enjoyment of teamwork, a concern about interpersonal relationships, and a need to reduce uncertainty.

- Power: The need for power is characterized by a drive to control and influence others, a need to win arguments, a need to persuade and prevail.

According to McClelland, the presence of these motives or drives in an individual indicates a predisposition to behave in certain ways. Therefore, from a manager's perspective, recognizing which need is dominant on any particular individual affects the way in which that person can be motivated.

Theory of "X" and Theory of "Y":

Douglas McGregor observed two diametrically opposing viewpoints of managers about their employees, one is negative called "Theory of X" and one is positive called "Theory of Y".

a) Theory of X : Following are the assumptions of managers who believe in the "Theory of X" in regard to their employees:

- Employees dislike work; if possible avoid the same
- Employees must be coerced, controlled or threatened to do the work
- Employees avoid responsibilities and seek formal direction
- Most employees consider security of job, most important of all other factors in the job and have very little ambition.

b) Theory of Y: Following are the assumptions of managers who believe in the "Theory of Y" in regard to their employees:

- Employees love work as play or rest
- Employees are self directed and self controlled and committed to the organizational objectives
- Employees accept and seek responsibilities
- Innovative spirit is not confined to managers alone, some employees also possess it.

Theory of X assumes Maslow's lower level needs dominate in employees. Whereas Theory of Y, assumes Maslow's higher level needs dominate in employees.

Goal Setting Theory : Edwin Locke proposed that setting specific goals will improve motivation. Salient features of this theory are the following:

- Specific goal fixes the needs of resources and efforts
- It increases performance
- Difficult goals result higher performance than easy job
- Better feedback of results leads to better performance than lack of feed back.
- Participation of employees in goal has mixed result

- Participation of setting goal, however, increases acceptance of goal and involvements.
- Goal setting theory has identified two factors which influences the performance. These are given below;
  - o Goal commitment
  - o Self efficiency
- Goal commitment: Goal setting theory presupposes that the individual is committed to the goal. This commitment depends on the following:
  - o Goals are made public
  - o Individual has an internal locus of control
  - o Goals are self-set
- Self –Efficiency : Self Efficiency is the belief or self confidence, that he/she is capable of performing task. Persons with high self-efficiency put up extra-efforts when they face challenges. In the case of low self-efficiency level they will lessen or even abandon when meeting challenges.

Reinforcement Theory: This theory focuses its attention as to what controls behaviour. In contrast to goal setting theory, which is cognitive approach focuses attention on what initiates behaviour. Behaviour, as per cognitive approach is initiated by internal events. Reinforcement theory argues that behaviour is reinforced and controlled by external events.

Equity theory: This theory of motivation centres on the principle of balance or equity. According to this theory level of motivation in an individual is related to his or her perception of equity and farness practiced by management. Greater the fairness perceived higher the motivation and vice versa. In this assessment of fairness, employee makes comparison of input in the job (in terms of contribution) with that of outcome (in terms of compensation) and compares the same with that of another colleague of equivalent cadre.

07 Researches on Motivation:

Much of the research on motivation (mostly from the 1930s to the 1970s) took place in the field of industrial psychology, focusing on ways to motivate people in the workplace; i.e. how to get workers to work harder, faster, and better. Within the past thirty years with the increasing importance of identifying effective motivational techniques for improving classroom management and accommodating the ever-increasing diversity of student populations (Wlodkowski 1981), there has been a shift in that research from the workplace to the classroom. As a result, a number of researchers have begun to focus on ways to apply some of the same theories and concepts found to be effective in industry to the teaching-learning environment.

Research on motivation in classroom settings indicates that students perceive their own motivations inextricably linked to the motivational quality of the instruction they receive. In a study exploring the relationship of specific instructional factors to motivational outcomes, Small and Gluck (1994) found that adult subjects believe both the instructor and the learner are important motivating factors. In a study of college students' perceptions of interesting and boring instruction, Small, Dodge, and Jiang (1996) found that most students hold the instructor accountable for making the instruction either interesting or boring. Therefore, it appears that identifying ways to make instruction as motivating as possible for students would be an important goal.

The limited research on motivation in the field of library and information science has largely focused on student behaviors and outcomes in relation to the information search. For example, Kuhlthau's (e.g., 1993) work has explored the thoughts, behaviors, and feelings that students experience as they go through various stages of the research process. She describes the "exploration stage" of research as the most difficult, where students encounter information that is "inconsistent and incompatible and does not match what they already know" , resulting in feelings of anxiety, uncertainty, and a lack of confidence.
In a study on information search styles and gender, Burdick (1996) found that more than one-half of the students in her study, regardless of gender, ranged from mildly to highly detached, disinterested, or bored with the information search process (characteristic of Day's zone of relaxation, when the person has received too little stimulation). Burdick emphasizes the importance of instruction that develops both ability (i.e. knowledge and skills) and desire (i.e. motivation). Research is needed to identify instructional strategies that help achieve that optimal level of arousal (zone of curiosity) characterized by excitement, interest, and exploration during the information search process.

08 Application to Maslow's and Herzberg's Theory in Library and Information Science:

Maslow's theory is none other than motivational theories or related studies in motivation. The utility of this concept in library science is grouped in library personal management and user studies. The concept of human relations obviously given emphasis understanding and motivating users and also on user based relationships. In the perspective of Library Personal Management motivation is needed to the staff of the library specially librarian has to implemented positive motivational methods to increase job satisfaction to achieve desired goal. We need to think over with practical experience and redesigning of a job which are generally to some extend monotonous base like card filing, accessing etc so we have to think over on organizational change. Librarian or library manager first of all think on individual ability, skill and interest of employees together. Inviting worker to redesigning the job and setting up a way for

performance standard or for evaluation criteria. Various dimensions like autonomy, task identity, feedback etc should incorporate. If the nature of monotonousness is not fulfilled again design a new system like rotation etc. Performance standard should be realistic; appraisal procedure should be unbiased, transparent. Rewarding and other motivational method should be employed in regular fixed intervals.
In case of user perspective, users now empowered with every aspect of the library even collection development policy also powered with the user's choice. Here Maslow theory is very mush applicable in reader's requirement studies, behavior studies and maintaining good relation with users. Understandings of users are very much important for library planning and services. General needs of the potential users are the main necessity and strength of the library. Maslow theory and Herzberg's Theory is equally useful for understanding behavior and attitude of the readers of the library. Loss, mutilation of books may be defined through this theory. Maintaining good relation with the users given the chances to get positive and negative feedback from the users end. The feedback of a user becomes highly relevant and useful when he or she feels that library staffs stood understand his needs.

09 Conclusion:

Motivation is the drive behind all human action. As Locke has stated:
"The issue of how to understand and influence human motivation has proven to be one of the most recalcitrant problems in human psychology. The fundamental reasons for this are that motivation at root comes by the individual. Since motivation is "inside" the person, it cannot be observed directly, and since individuals possess freedom of choice ... people cannot be controlled directly from the outside."

Staff motivation is being considered as the most important condition for an effective and efficient library and information centre. Library and information centre managers should try to explore the various motivational issues. The satisfiers, or the motivators, are those aspects of job, which are concerned with the actual context of the job. The dissatisfiers or the hygiene factors, pertain to the context of the work. Manager should motivate employees by providing them an environment that makes them work towards the goals of e-organization. Thus by motivating the employees manager can improve the employees performance and organizational effectiveness. Understanding motivation helps in analyzing employee's behavior. The major factors contributing to human behavior are perception, learning and motivation.

In this tutorial article discussion has been done on various content based motivation theories i.e., Maslow's hierarchy of needs, Herzberg's two factor theory, ERG theory, Mclelland's three needs theory. Although Herzberg's paradigm of hygiene and motivating factors and Maslow's hierarchy of needs may still have broad applicability in the business world, at least one aspect of each, salary as a hygiene factor (Herzberg). Recent research appears to validate the existence of universal human needs, although the hierarchy proposed by Maslow is called into question. In their extensive review of research based on Maslow's theory, Wahba and Bridge well found little evidence for the ranking of needs which Maslow described, or even for the existence of a definite hierarchy at all.

Maslow's hierarchy has also been criticized as being individualistic because of the position and value of sex on the pyramid. Maslow's pyramid puts sex on the bottom rung of physiological needs, along with breathing and food. It views sex from an individualistic and not collectivist perspective: i.e., as an individualistic physiological need that must be satisfied before one move on to higher pursuits. This view of sex neglects the emotional, familial and evolutionary implications of sex within the community (Kenrick).

The behavioral theories including Maslow and Herzberg's Theories are still have lot of relevance. These theories not only act as tool to design motivators but also provide a frame of reference in personal management and user studies which are undoubtedly swing to the activities of the libraries in present context.

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[Tutorial Article]

Leadership Styles in Librarianship: Its Essentiality among the Information Professionals

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Abstract: Within the context of increasing competitiveness; limited resources; and organizational challenges such as changing structures and greater use of team-based decision-making, the effective organizational leadership of libraries is of growing importance. The study of leadership issues is necessary as a part of better defining the type of leadership needed to ensure institutional success. In this regard, the identification of leadership competencies is an important consideration as a part of identifying the educational and professional preparation needed by library leaders. The aim of this paper is to focus on the functions and characteristics of leadership. Different approaches and theories are emphasized in details along with the styles of leadership. Finally the importance of leadership in information profession and its essentiality is discussed.

Keywords: Leadership Styles, Ohio State Model, Managerial grid, McGregor's Theory X & Theory Y, etc.

1. Introduction:

Leadership is in fact a process of influencing followers. Characteristics of leadership are functions of time and situation and differ in different cultures and countries. An organization or establishment is made up of a group of people who have come together to form a business in the pursuit of achieving a common goal. The establishment is usually manned by personnel teams who occupy different positions, perform different tasks and operations in consonance with the purpose and goals of the organization. In order to achieve the ultimate goal, effective management is required to further achieve cohesion, order, and results. Leadership can be defined as the process of having dominance on group activities in order to realize the objectives. To execute the leadership task, managers try to have influence the people under their supervision and motivate and direct them to achieve the organizational objectives. Creating motivation in staff in such a way that they do their activity and work in the organization is with enthusiasm. Type's of the behaviors which results in success of the leader depends on the definition of success and is conditions.

A manager is charged with the responsibility of running an organization. Such a manager, however, requires the demonstration of some qualities to achieve excellence or success in business. It is within this context that the relevance of 'leadership' will be considered as a critical variable of effective, efficient, and brilliant performance.

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The library and information organizations are no exception in their need for good leadership to ensure good management as well as attainment of organizational objectives.

Leadership vs. Management

Leadership	**Management**
Leaders innovate	Managers administer
Leaders ask what and why	Managers ask how and when
Leaders focus on people	Managers focus on systems
Leaders do the right things	Managers do things right
Leaders develop	Managers maintain
Leaders inspire trust	Managers rely on control
Leaders have long term perspective	Managers have short-term perspective
Leaders challenge the status quo	Managers accept the status quo
Leaders have an eye on the horizon	Managers have an eye on the bottom-line
Leaders originate	Managers imitate
Leaders are their own persons	Managers emulate the classic good soldier
Leaders show originality	Managers copy

Source: (Wikipedia 2011)

2. Functions of Leadership:

i) Motivating and guiding personnel:

Motivation leads to fulfillment of desired goal, while leadership provides the ignition to motivate a human being. It is leadership that guides, inspires and directs group members for achieving a unity of purpose. Without leadership, a group destroys its team spirit and fitters away its energy.

ii) Understanding followers and securing their co-operation:

A leader often influences his followers, but he/ she also get influenced by the problems and feelings of the followers. True spirit of co-operation grows principally out of the manner in which the leader deals the situation and his followers. A leader should have a sympathetic contact, careful listening and confidence winning attitude.

iii) Creating an ambience for performance:

To achieve the desired goal the leader must know what motivates his followers and how can these motivators be operative. In order to have full participation and a team effort the leader must create a climate for performance. The more efficiently the leader understands and tackles every situation with the understanding the process of motivation, the more effective and successfully he reaches to his followers.

iv) Influencing and shaping the social system:

Leadership is the concomitant of all human associations in our society. Leadership emerges as a natural process in any grouping of human beings. Leadership influences society as it provides foresight, imagination and initiative to the group. Unsatisfactory human performance in any organization can be primarily attributed to poor leadership.

3. Characteristics of a Leader and that of a Librarian / Information Professional:

a) Co-existence with followership:

It is axiomatic to say that there cannot be any leader without the existence of followers. The leader or a librarian exercises authority over the group, and such authority is willingly accepted by followers. The first feature of leadership is thus to found in confidence, respect, loyalty and devotion shown by followers.

b) Assumption of responsibility:

Acceptance of full responsibility for all situations is an essential characteristic in leadership. As the leader exercises authority and undertakes the task of guidance, he must assume the responsibility for all actions and operations of his followers. As leadership demands the ability to stimulate the qualities of enthusiasm and initiative among individual members, a librarian/information professional also have such qualities of responsibility.

c) Understanding feelings and problems:

Leadership lies in understanding both the group and individual feelings and problems of followers. The leader must try for the satisfaction of social and personal needs of his followers. The leader is looked upon as one dependable friend, philosopher and guide by followers. Understanding of followers' feelings and problems leads to group cohesiveness and team unity.

d) Objectivity in relations:

Another characteristic of leadership rests on maintaining objectivity in relations through fair play and absolute justice in all affairs of the organization. This playing fair is to be demonstrated in all decisions and actions, in communication and participation or in placement and transfer. The leader's ability to inspire can be retained intact through his impartiality in all operation and activities.

e) Self-awareness:

As the leader's action influences the behavior of followers, the leader needs to be aware of his own preferences and weakness with a view to learning what impression his actions make on followers. To be effective, leadership must also be supported by the technical competence and personality traits. The leader must have faith and determination to pursue a course of action to its logical ends.

4. Approaches of Leadership:

4.1 Great Man Approach

This approach of leadership is based on the belief that leaders are exceptional people, born with innate qualities, destined to lead. The use of the term 'man' was intentional since until the latter part of the twentieth century leadership was thought of as a concept which is primarily male, military and Western. This led to the next school of Trait Approach.

4.2 Trait Approach

The lists of traits or qualities like honesty, integrity, loyalty, or diligence associated with leadership exist in abundance and continue to be produced. It was believed that through this approach critical leadership traits could be isolated and that people with such traits could then be recruited, selected, and installed into leadership positions. This approach was common in the military and is still used as a set of criteria to select candidates for commissions.

4.3 Behaviourist Approach

These concentrate on what leaders actually do rather than on their qualities. Different patterns of behaviour are observed and categorized as 'styles of leadership'. This area has probably attracted most attention from practicing managers.

4.4 Situational Approach

This approach sees leadership as specific to the situation in which it is being exercised. For example, whilst some situations may require an autocratic style, others may need a more participative approach. It also proposes that there may be differences in required leadership styles at different levels in the same organization.

4.5 Contingency Approach

This is a refinement of the situational viewpoint and focuses on identifying the situational variables which best predict the most appropriate or. effective leadership style to fit the particular circumstances. The leaders ability to lead is contingent upon various situational factors, including the leader's preferred style, the capabilities and behaviours of followers and also various other situational factors.

4.6 Transactional Approach

This approach emphasizes the importance of the relationship between leader and followers, focusing on the mutual benefits derived from a form of 'contract' through which the leader delivers such things as rewards or recognition in return for the commitment or loyalty of the followers. The approach is preoccupied with power and position, politics and perks, hard data orientated which focuses on tactical issues and supports structures and systems that reinforce the bottom line, i.e. to maximize efficiency, and guarantee short-term profits.

4.7 Transformational Approach

The central concept of this approach is change and the role of leadership in envisioning and implementing the transformation of organizational performance. The approach is preoccupied with purposes and values, morals, and ethics which are orientated toward long-term goals without compromising human values and principles, focusing more on missions and strategies that align internal structures and systems to reinforce overarching values and goals.

5. Different Styles of Leadership:

5.1 Based on Authority

5.11 Autocratic Leadership: -

- The classical approach.
- Manager retains as much power and decision making authority as possible.
- Does not consult with staff, nor allowed to give any input.
- Staff expected to obey orders without receiving any explanations.
- Structured set of rewards and punishments.

Can be effective when –

- New, untrained staff does not know which tasks to perform or which procedures to follow.
- Effective supervision provided only through detailed orders and instructions.
- Staff does not respond to any other leadership style.
- Limited time to make a decision.
- A manager's power challenged by staff.
- Work needs to be coordinated with another department or organization.

Not effective when –

- Staff becomes tense, fearful, or resentful.
- Staff expects their opinions heard.
- Staff depends on their manager to make all their decisions.
- Low staff morale, high turnover and absenteeism and work stoppage.

5.12 Democratic Leadership: -

- Also known as participative leadership style.
- Encourages staff to be a part of the decision making.
- Keeps staff informed about everything that affects their work and shares decision making and problem solving responsibilities.
- Produce high quality and high quantity work for long periods of time.
- Staff likes the trust they receive and respond with cooperation, team spirit, and high morale.

Can be effective when –

- Wants to keep staff informed about matters that affect them.
- Wants staff to share in decision-making and problem-solving duties.
- Wants to provide opportunities for staff to develop a high sense of personal growth and job satisfaction.
- A large or complex problem that requires lots of input to solve.
- Changes must be made or problems solved that affect staff.
- Want to encourage team building and participation.

Not effective when –

- Less time to get everyone's input.
- Easier and more cost-effective for the manager to make the decision.
- Mistakes can't be afforded.
- Manager feels threatened by this type of leadership.
- Staff safety is a critical concern.

5.13 Bureaucratic leadership: -

- Manages "by the book" concept.
- Everything done according to procedure or policy.
- If not covered by the book, referred to the next level above.

Can be effective when –

- Staff performing routine tasks over and over
- Staff needs to understand certain standards or procedures.
- Safety or security training conducted
- Staff performing tasks that require handling cash

Not effective when –

- Work habits form that is hard to break, especially if they are no longer useful
- Staff lose their interest in their jobs and in their co-workers
- Staff do only what is expected of them and no more

5.14 Free-rein / Laissez-Faire Leadership: -

- Also known as the "hands-off" style
- The manager provides little or no direction and gives staff as much freedom as possible
- All authority or power related to determination of goals, making decisions, and resolve problems are given to the staff.

Can be effective when –

- Staff are highly skilled, experienced, and educated
- Staff have pride in their work and the drive to do it successfully on their own
- Outside experts, such as staff specialists or consultants used
- Staff are trustworthy and experienced

Not effective when –

- Staff feel insecure at the unavailability of a manager

- The manager cannot provide regular feedback to staff on how well they are doing
- Managers unable to thank staff for their good work
- The manager doesn't understand his or her responsibilities and hoping the staff cover for him or her

5.2 Based on Behaviour

5.21 Ohio State Model (1945)

The studies indicated the leader behaviour in two distinct dimensions: Initiating Structure and Consideration. Initiating structure refers to the extent to which a leader defines and organizes his/her own role as well as the roles of his subordinates. Consideration on the other hand, reflects the degree to which the leader's behavior towards his subordinates is characterized by mutual trust, respect and regard for subordinate's feelings.

Consideration

Low Structure and High Consideration	**High Structure and High Consideration**
Low Structure and Low Consideration	**High Structure and Low Consideration**

Initiating structure

The above four quadrants have been developed to show various combinations of Initiating Structure (*task behaviour*) and Consideration (*relationship behaviour*).

5.22 McGregor's Theory X & Theory Y (1960)

Although not strictly speaking a theory of leadership, the leadership strategy of effectively-used in participative management as proposed by Douglas McGregor's in his Theory X & Theory Y which had a tremendous impact on managers. McGregor summarized two contrasting sets of assumptions made by managers in industry where:

Theory X manager believes:

- The average human being has an inherent dislike of work and will avoid it if possible.

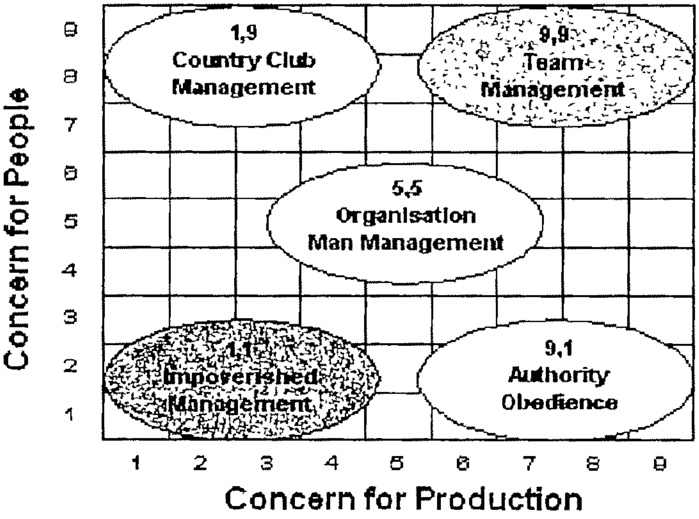
- Because of this human characteristic, most people must be coerced, controlled, directed, or threatened with punishment to get them to put forth adequate effort to achieve organizational objectives.
- The average human being prefers to be directed, wishes to avoid responsibility, has relatively little ambition, and wants security above all else.

Theory Y manager believes:

- The expenditure of physical and mental effort in work is as natural as play or rest, and the average human being, under proper conditions, learns not only to accept but to seek responsibility.
- People will exercise self-direction and self-control to achieve objectives to which they are committed.
- The capacity to exercise a relatively high level of imagination, ingenuity, and creativity in the solution of organizational problems is widely, not narrowly, distributed in the population, and the intellectual potentialities of the average human being are only partially utilized under the conditions of modern industrial life.

5.23 Managerial Grid (1964)

The Managerial Grid developed by Robert Blake and Jane Mouton focuses on task (production) and employee (people) orientations of managers, as well as combinations of concerns between the two extremes. A grid with plots of five basic leadership styles is concern for production on the horizontal axis and concern for people on the vertical axis.



The five leadership styles in the grid are:

1. *Improvised (1,1):* It calls for the exertion of minimum efforts to get the required work done for sustaining organizational membership.
2. *Country Club (1,9):* Putting emphasis on the needs of people for satisfying relationships, it leads to a comfortable friendly organizational atmosphere and work tempo.
3. *Task / Authority Obedience (9,1):* Efficiency in operations may be secured from arranging a tight structuring and conditions of work by autocratic leaders who have concern for production only and little for people.
4. *Middle-of-the-Road / Organization Man (5,5):* Adequate performance, though not outstanding, is obtained by maintaining morale of people at satisfying level.
5. *Team (9,9):* This leadership style calls for harmonizing production needs with the needs of individuals and has the highest possible concern both for people and for production.

6. Importance and Type of Leadership required in Information profession:

To a large extent, there is a compelling rationale for the development of a statement of leadership in librarianship on the basis of various changes in the environment external, as well as internal, to libraries. In the context in which libraries operate, these factors include:

- increased competition;
- changing organizational structures;
- the proliferation of team-based decision-making and participative management;
- the proliferation of technological applications in the provision of information services;
- greater responsibility being placed on library administrators to secure growing portions of their resources from sources outside the parent.

There are number of examples of professional competencies for information professionals, including the consideration of leadership in specific professional settings, the development of a statement of leadership competencies for the profession generally or with regard to particular types of settings such as academic libraries. With regard to academic libraries, there have been examples of competencies developed in association with library functional areas as well, most notably, reference services and collection development. Leadership competencies that have been identified as important for leaders in LIS have focused on issues of defining and achieving an organizational vision, mentoring, modeling valued behaviors, and effective interpersonal communication.

The following are the different leadership styles:

6.1 Affiliative Leaders:

The Affiliative leadership style is most effective in situations where morale is low or teambuilding is needed. The librarian as a leader is easily recognized by their theme of "employee first". Employees can expect much praise from this style. Information professionals lead their way by aiming high morale of the employees in the institution and indulging everyone in a team building sprit.

6.2 Authoritative Leaders:

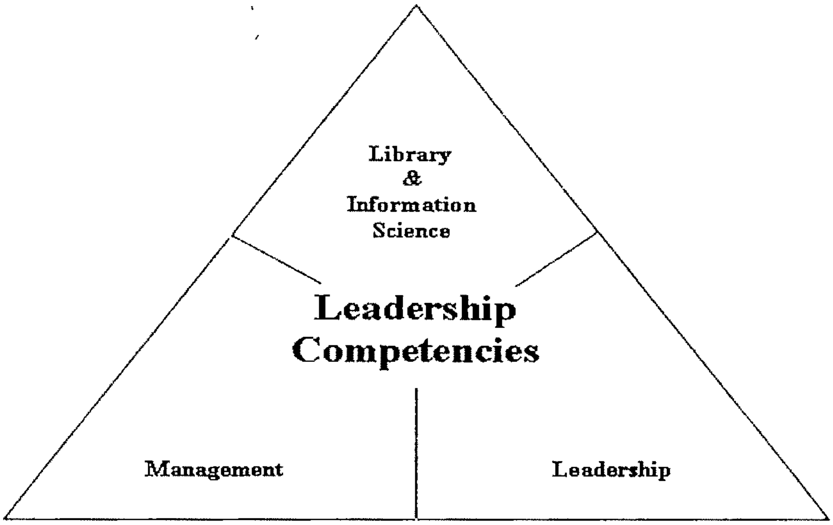
The Authoritative leadership style can be effective when the institutional have a drifting situation. The authoritative leader is an expert in dealing with the problems or challenges at hand, and can clearly identify goals that will lead to success. This leader also allows employees to figure out the best way to achieve those determined goals.

6.3 Coercive Leaders:

The Coercive leadership style should be used with caution because it's based on the concept of "command and control", which usually causes a decrease in motivation among those interacting with this type of manager. This type is extremely effective when the institution needs a complete turnaround.

6.4 Democratic Leaders:

The Democratic leadership style **is** participative style which encourages staff to be a part of the decision making to produce high quality and high quantity work for long periods of time. In this style staff likes the trust they receive and respond with cooperation, team spirit, and high morale. A librarian can solve a large or complex problem that requires lots of input from his employees with his democratic leadership and provide opportunities for staff to develop a high sense of personal growth and job satisfaction.



The above figure shows how leadership competencies work in the purview of management, library and information science and leadership.

7. Conclusion:

Leadership could be defined as influencing teamwork with the aim of securing certain goals. Business enterprises and corporations have embraced the application of leadership principles which is profitability and hence for the Library and Information Professionals, to experiences and enhance professionalism, information service delivery as well as social/educational relevance of practitioners to accomplish organizational goals.

To be a successful leader in information profession –

- One should be more relationship (people) oriented,
- Should adjust their leadership styles as the situation demands,
- Self-development in leadership skills,
- Integration of leadership development into the library/information centre strategic planning.
- Leadership Development Programme to run from the top to bottom.
- To maintain a strong network within and outside the organization to enhance development of skills and knowledge
- Should create awareness for the need of leadership development skills among professionals.

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[Tutorial Article]

Organizational Behaviour: Concepts, History and Models

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Abstract:

Organizational Behavior has been explained. Its scope and coverage have been detailed. Related concepts have been described. Historical background has been looked into. Models of Organizational Behavior have been explored.

Keywords: Organizational Behavior, Organizational Behavior – History, Organizational Behavior – Models, Organizational Behavior in Library & Information Science

1. Introduction:

Organizational Behavior (OB) is the study and application of knowledge about how people, individuals, and groups act in organizations. It has different aspects ingrained in it, namely, psychological, societal and sociological, management science related or managerial, humane, ethical, technological and many other subjects. In fact, it is a perfect blend where man, machine and society interact with one another in such a way to make the progress of human race possible.

2. Definition:

Organisation is a consciously coordinated social unit, composed of two or more people that functions on a relatively continuous basis to achieve a common goal or set of goals[1]. Organizational Behavior[2] is the key aspect to maintain and enhance interaction levels amongst employees in the company.

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[1] Lecturer

It is the academic field of study[3] concerned with human behavior in organizations.

3. **Scope & Coverage:**

Organizational Behavior encompasses a wide range of topics, such as human behavior, motivation, group dynamics, organization structure, decision making, careers, conflict resolution, change management, leadership, teams, etc. Some of the terms associated with OB are OB elements, OB models, social systems, work life, action learning, and change.

Some of the related subordinate concepts are Leadership, Openness, Initiative, etc

Some of the related coordinate concepts are Organization Design, Organization Development among others. These are explained below.

Organization Design - This is the simple framework of creating roles and formal reporting relationships for employees in an organization.

Organization Development- It involves the combined, planned effort of all the resources of the company to ensure that the company achieves its stated (or sometimes unstated) mission.

4. **Importance of Organizational Behavior**:

External and internal relationships in any organization mark its work culture and the ambience within which the organizational goal is to be achieved. Here lies the importance of studying organizational behavior. System approach may help in this regard to interpret people-organization relationships in terms of the whole person, whole group, whole organization, and whole social system. Its purpose is to build better relationships by achieving human objectives, organizational objectives, and social objectives. It helps in increasing the **Quality of Work Life**[4] **(QWL)** by providing a better work culture through better communication and interaction.

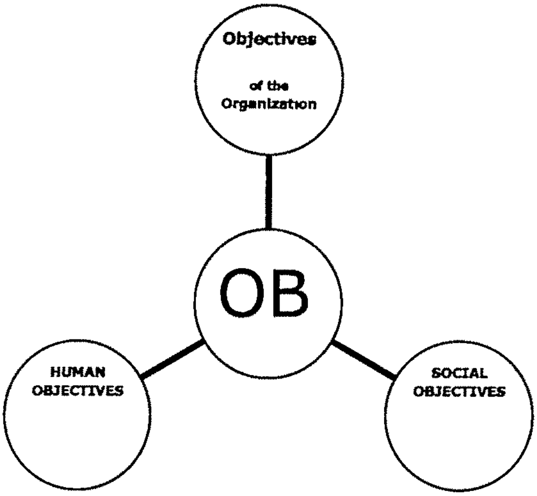

Diagram: Goal of organizational Behaviour

5. **Historical Background**[5]:

The concept of 'Organisation' emerged as an important entity especially after the Industrial Revolution of the western countries. The concept of analyzing workplace behavioural patterns seems to be relevant since the days of Taylor who composed his famous theory know as the 'School of Scientific Management'. His goal was an increase in the production of an organization. The autocratic model has been derived in the environment caused by the industrial revolution and the scientific management era. The other models gradually derived in the next decades, none of which is thought perfect in itself but a combination may be the answer to the requirement according to each specific situation.

6. **21st Century corporate**[6]

As opposed to previous era, 20th century is trying to evolve a corporate culture where marketing, culture, anthropology, and modern business practice all combine in a perfect symmetry.

6.1 Models of Organizational Behavior[7]– Different models exist to express the attitudes of the theoreticians to explain the models of

OB. The most prominent of them are Autocratic, Custodial, Supportive, Collegial and SOBC.

The organization's base rests on management's philosophy, values, vision and goals. This in turn drives the organizational culture which is composed of the formal organization, informal organization, and the social environment. The culture determines the type of leadership, communication, and group dynamics within the organization. The workers perceive this as the quality of work life which directs their degree of motivation. The final outcomes are performance, individual satisfaction, and personal growth and development. All these elements combine to build the model or framework that the organization operates from.

There are four major models or frameworks that organizations operate out of, Autocratic, Custodial, Supportive, and Collegial[8]

6.1.1 Autocratic Model – The basis of this model is powered with a managerial orientation of authority. The employees in turn are oriented towards obedience and dependence on the boss. The employee need transforms into subsistence. The performance result is minimal.

6.1.2 Custodial Model – The basis of this model is economic resources with a managerial orientation of money. The employees in turn are oriented towards security and benefits and dependence on the organization. The employee need that is met is security. The performance result is passive cooperation.

6.1.3 Supportive Model – The basis of this model is leadership with a managerial orientation of support. The employees in turn are oriented towards job performance and participation. The employee need that is met is status and recognition. The performance result is awakened drives.

6.1.4 Collegial Model – The basis of this model is partnership with a managerial orientation of teamwork. The employees in turn are oriented towards responsible behavior and self-discipline. The employee need that is met is self-actualization. The performance result is moderate enthusiasm.

There is another pragmatic model for dealing with OB, namely SOBC.

6.1.5 SOBC Model[9]–

S stands for stimulus, O for organism, B for behavior, and C for consequence. The **S-O-B-C model** gives the basic and provides a mechanism for systematically considering human behaviour in organisations.

- Stimulus: is any event that happens in the environment, it can be a sound (e.g. someone shouting) a scene (a car accident, a fight.), events 0(receiving a salary check).
- Organism: is a human being, in OB s/he can be an employee or an employer.
- Behavior: the behavior of the human being in response to the stimulus for e.g. a child (Organism) may strike (Behavior) his sister after seeing a violent TV show (Stimulus).
- Consequence: the outcome that comes after the behavior, it either reinforces (thus repeated) the behavior or punished (thus not repeated). In the child example previously mentioned, his father can rebuke (Consequence: punishment) him for doing what he did.

7. **Useful Sources for Organisational Behaviour[10]**:

University of New Hampshire Library (Research Sources) has documented a very useful list of information sources in Print and electronic format including magazine/ journal/ newspaper articles, government documents, etc.

8. **Organizational Behavior in LIS**:

Librarians are also managers, they manage knowledge in its manifested forms as their role as facilitator of knowledge. They need to understand and apply Organizational Behavior to work out their managerial roles in planning, controlling, organizing and leading knowledge activities of the human resource segment associated with the library and information service sector. They also need the knowledge of Organizational Behavior in their role as monitor, disseminator and spokesperson of the knowledge organization.

9. **Conclusion**:

Organizational Behavior Management (OBM)[11] began as the application of behavior analysis to organizational settings and retains the philosophical and methodological principles of behavior analysis (Bucklin, Alvero, Dickinson, Austin, & Jackson, 2000). This has already established as an important activity and prepared its own niche as one of the major building blocks of effective organizational communication.

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[Tutorial Article]

Stress Management in Libraries

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Abstract :

House Selye who introduced the concept of stress in life science. Stress may be considered as any physical, chemical or emotional factor that caused bodily or mental unrest and that may be a factor in causing disease. Life provides numerous demands that can prove difficult to handle, stress management is the best way to manage anxiety and maintain overall well-being. This paper attempts to define Concept and definition of stress, Symptoms and causes of stress, positive and negative effects of stress and stress in the library profession. It describes about the stresses in library environment, reasons of stress in the library and how to manage stress in the library.

Keyword: Stress, Stress Management

1. Introduction:

An orgazisation is group of people working towards common objectives, which develop and maintain stable and predictable behaviour patterns. Management is commonly defined as “getting work done through people”. This definition explains the signification of the role of the people in the organization. The work will not be done unless people want to do their work, and if the work is not done there will be no organization. Hence it is the cooperation of organizational employees, which is crucial to the success or failure of the organization. Libraries are different from business organization being service oriented organizations. Stress is an inevitable part of today’s fast life. It is very essential to manage stress in libraries as it affects not only the individual and organization but also society at large. Now library profession is being changed due to the advent of information technology in the age of information explosion. The technology is progressively replacing the old methods of information collections, storage and retrieval so that library profession is becoming very hectic that is the reason of stress.

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[1] Assistant Librarian

[2] Librarian

2. Concept and definition:

Stress may be considered as any physical, chemical or emotional factor that caused bodily or mental unrest and that may be a factor in causing disease. Physical and chemical factors that can cause stress include trauma, infections, toxins, illness and injurious of any sort. Emotional causes of stress and tensions are numerous and vary. While many people associate the term stress with psychological stress, scientists and physicians use this term to denote any force that impairs the stability and balance of bodily functions.

The Stress is derived from a latin word "stringere" , which means to bind tight and it is also the shortened form of distress, which denotes noxious human experiences. House Selye who introduced the concept of stress in life science. According to Selye, stress is defined as the non-response of the body to any demand made upon it. Hans Selye was one of the founding fathers of stress research. His view in 1956 was that "stress is not necessarily' something bad- it all depends on how you take it the stress of exhilarating, creative successful work in beneficial, while that of failure, humiliation infection is detrimental".

Stress is the psychological, physiological and behavioural response by an individual when they perceive a lack of equilibrium between the demands placed upon them and their ability to meet those demands, which over a period of time, leads to ill health. Stress has been used to denote any of three thing: an excessive environmental force, the harm caused and the individual reaction in such a situation.

What is Stress Management?

Stress management is the alteration of stress and especially chronic stress often for the purpose of improving everyday functioning. Stress produces numerous symptoms which vary according to persons, situations and severity. These can include physical health decline, as well as depression. The process of stress management is one of the keys to a happy and successful life in modern society. Although life provides numerous demands that can prove difficult to handle, stress management is the best way to manage anxiety and maintain overall well-being.

3. Symptoms of Stress

1. Physical- Sleeping problems, headaches, rapid heartbeat, pains, blood pressure, difficulty waking up in the morning etc.
2. Feeling- Fear, sadness, moodiness etc.

3. Thoughts- Constant worry, negativity, frustration, self-criticism, confusion, visualizing failure etc.

4. Causes of stress:

- Poor planning
- Continuous unreasonable performance demands
- Lack of effective communication
- Lack of job security
- Long working hours
- Office politics and conflict among staff
- Insufficient resources and infrastructure to do the job
- Not feeling appreciated
- Repetitive work
- Low pay
- Funds problem
- Lack of training and development programmes
- Lack of reading materials
- Lack of staff
- Pressure of authority
- Organizational change

5. Positive effects of stress

Stress is valuable under certain circumstances, e.g. sports, making speeches and taking examination. Without stress, we would be unable to react the situations quickly and would not have the stimulation, we need to think and act. Stress provides life's energy, and keeps us from being bored.

6. Negative effects of stress

The negative effects of stress show particularly when a person allows stress to remain in the body, usually when there is no chance to take the necessary steps to release, a stress response that is too strong or too long. The negative effects of stress shoe up in three ways in particular:

A. Unsuitable behaviour
B. Lower energy and performance levels
C. Poorer health

7. Stress in libraries

The stresses in library environment can be broadly divided into following types:

1. Technostress: "Technostress" (computer related stress) covers that range of chronic human psychological problems that may result from the use of automation. It is a common problem for librarians, is a combination of performance anxiety, information overload, role contlicts and organizational factors. Rapid technological change has become a fact of

life in the libraries. The development and application of information technologies in libraries is the major stress for LIS professionals. Due to rapid change in computer and hardware and software is a common phenomenon in almost all libraries.

2. Job security stress: the application of information communication technology has compelled the library professionals to acquire new knowledge along with the traditional library functions and services. On the contrary, there is limited scope for them to undergo in service training programme, higher studies, refresher course etc. which has increased a considerable amount of stress among professionals.
3. Physical stress: in the digital environment, sitting in front of computers for a long hour, working air-conditioned environment etc. have also resulted in the physical stress and illness.

8. Reasons of stress in library

- **Technological Change:** The information and communication technology (ICT) is a fast changing phenomena. Accordingly the application of ICT in libraries is also changing at an alarming rate, which creates stress among library professionals.
- **Changing Library Environment**: Many libraries have migrated from older manual system to automated systems and more recently to newer more sophisticated digital library systems. Staff members must unlearn old habits and procedures and learn to understand the new system
- **Change in Type of Document**: In addition to hard copy, most libraries are now acquiring at least some materials in alternative formats, such as CD-ROM or electronic documents or digital format. These materials, which were once handled on an ad hoc basis, must now be incorporated into the normal acquisitions workflow.
- **Change in Library Physical facility:** Problems or changes in physical facilities have become a vital problem in today's libraries. With the increased use of electronic formats, the library authorities are reluctant to expand facilities to cope with increasing space requirements. Some libraries are actually moving into new facilities with less space or losing space to other functions. But the hybrid type of libraries having both print and non-print documents face much problems relating to change in physical facilities of the library.
- **Changing users demand:** With the development of various micro subjects, information explosion, time bound academic programmes etc users attitude towards pin pointed information have changed. Accordingly the acquisition, organization and retrieval of information in quickest possible time have given a tremendous amount of stress in the mind of library professionals.
- **Reduce staff strength:** Restructuring, layoffs, loss of staff positions, and doing more with fewer people have become increasingly common which

has been a source of stress with the increasing workload. Further problems such as illness, disability, or death of a member of the library community have a growing impact on co-workers.

- **Lack of respect and recognition:** Library staff members are also distress at a lack of respect and recognition in their interpersonal relationships. Public services librarians and administrators usually report this as a lack of recognition of the library's role and value by people outside the library.
- **Inter-organizational conflicts:** There are interdepartmental conflicts, tensions between professionals and nonprofessionals, competition for status and resources, irritable and negative coworkers and gossip.
- **Career Stage:** Most of the positions of library staff in many state have no proper promotion channel like other department's employees as the result employees' approaches become negative and ultimately leads them to stress.
- **Loss of books**: Many institutes do not follow the rules of Government for loss of books which creates stress among library professionals.

9. How to manage stress:

- The first step to effective stress management is gaining knowledge of how stress operates in one's life and the role that various types of stressor and coping strategies can play in hurting stress .
- Library administration should assess the degree to which all staff members receive clear, timely, and full information relevant to their jobs and their contributions to the organizational mission.
- Identified gaps and deficiencies should be remedied, policies, goals, rules and expectations should be made as clear and explicit as possible for each staff member.
- Librarians should provide staff members with the maximum feasible autonomy and control over their work including participation in collective decision-making.
- Librarians and others in authority should continually monitor the physical work environments of staff members for sources of stress and strain.
- Orientation programmes for new entrants into library are especially important.
- Administrators should be knowledgeable about development stages in careers and the special stressor that are associated with the various stages.
- Libraries should explore the development of dual career tracks and associated reward systems so that those who lack administrative interests and aptitudes can have satisfying and high status careers in the technical or service arrears of librarianship.
- It is very important that librarians are as well trained as possible for carrying out their complex responsibilities, so the job demand do not rise faster than competence, thereby contributing to strain.

10. Conclusion:

Elimination of stress is unrealistic, since stress is a part of normal life. One reality of the twenty-first century is that LIS professionals are faced with constant challenges in their working environments. This is particularly true for LIS professionals of digital library environment, not only because of the role they play inside their libraries but because users expectations always seem to exceed library's capacity in terms of documents, infrastructure facilities, finance, staff etc. It is simply not possible to remove all sources of stress in the digital library workplace but the library managers can manage stress among their teams which will help to reduce some of its consequences, such as: poor morale, reduced performance and team conflict. The best way to manage stress in digital library environment are: create a supportive culture; appreciate people's differences; recognize the signs of stress; resolve issues as they arise; consider teambuilding; enable autonomy; and have a contingency plan.

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[Tutorial Article]

Disaster Management in Libraries: Response and Recovery Operations

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Abstract :

Disaster management in general is defined as the action taken by an organization in response to unforeseen or unexpected events that adversely affect the environment and people in the area surrounding that organization. This article focuses on the various aspects of disaster management. It stresses on the different types of disasters affecting libraries. It also emphasizes on the preventive measures and discusses about some advantages and disadvantages of disaster management.

Introduction

The word "Disaster" derives from the Latin words "dis" and "aster" meaning "apart" and "star." The current use of the word reflects the notion of an unlucky star and is "anything that befalls of ruinous or distressing nature; a sudden or great misfortune, mishap, or misadventure; a calamity." A disaster can be extensively defined as any tragic event with great loss stemming from events such as earthquakes, floods, catastrophic accidents, fires, or explosions. WHO defines Disaster as "any occurrence that causes damage, ecological disruption, loss of human life, deterioration of health and health services, on a scale sufficient to warrant an extraordinary response from outside the affected community or area." A disaster is an overwhelming ecological disruption occurring on a scale sufficient to require outside assistance. It is an event or series of events which seriously disrupts normal activities. Disasters are mainly of 2 types,

1. Natural disasters. Example – earthquakes, floods, landslides, storms, tsunami, drought, fire, etc.
2. Man-made disasters. Example –technological, chemical, wear and tear, theft, etc.

A natural disaster is a consequence when a natural hazard (e.g., volcanic eruption or earthquake) affects humans and/or the built environment. The resulting loss depends on the capacity of the population to support or resist the disaster: their resilience. This understanding is concentrated in the formulation: "disasters occur when hazards meet vulnerability". A natural hazard will hence never result in a natural disaster in areas without vulnerability, e.g., strong earthquakes in uninhabited areas.

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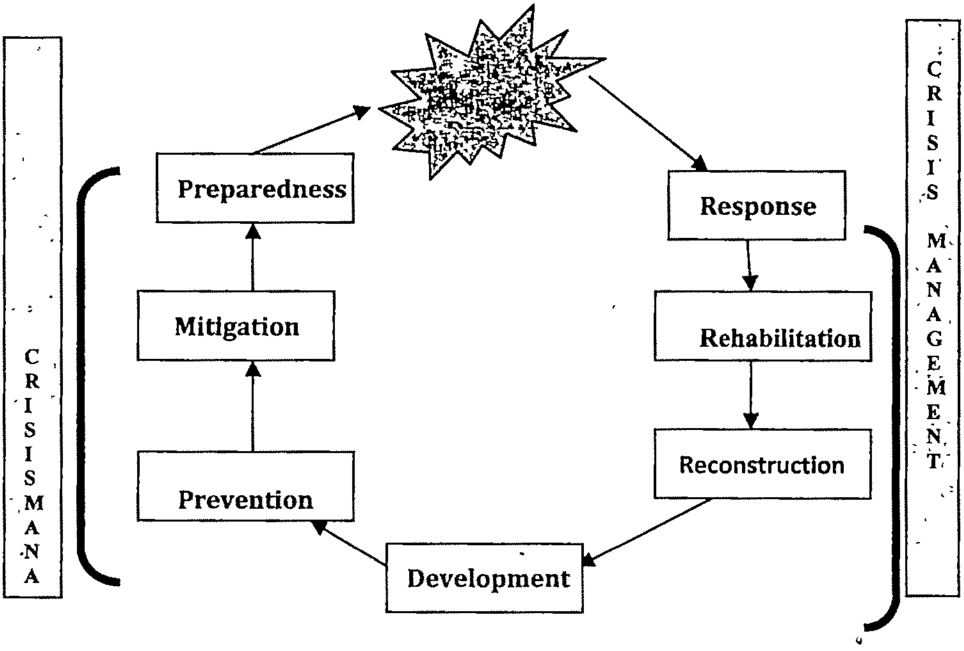
Man-made disasters are disasters resulting from man-made hazards (threats having an element of human intent, negligence, or error; or involving a failure of a man-made system). Man-made hazards or disasters are sometimes referred to as anthropogenic.

Disaster Management

Disaster Management is the discipline of dealing with and avoiding risks. It is a discipline that involves preparing, supporting, and rebuilding society when natural or human-made disasters occur. In general, any Emergency management is the continuous process by which all individuals, groups, and communities manage hazards in an effort to avoid or ameliorate the impact of disasters resulting from the hazards. Actions taken depend in part on perceptions of risk of those exposed. Effective emergency management relies on thorough integration of emergency plans at all levels of government and non-government involvement. Activities at each level (individual, group, community) affect the other levels. Disaster Management is the only term that captures the full range of meaning in what we do in security and natural hazard events. By including threat assessment, vulnerability, detection, and action, disaster management is comprehensive. The disaster management profession is composed of those occupations that need to maintain high states of readiness and whose tasks are to manage events that are extra-ordinary, and therefore costly. To achieve our primary objective of reducing costs (monetary and non-monetary) of disasters, the definition of what we do therefore is to improve effectiveness in the disaster management system using a comprehensive approach with our efforts.

DISASTER MANAGEMENT CYCLE



Disaster Management Phases:-

The nature of emergency management is highly dependent on economic and social conditions local to the emergency, or disaster. Experts have long noted that the cycle of emergency management must include long-term work on infrastructure, public awareness, and even human justice issues. This is particularly important in developing nations.

The process of disaster management involves four phases: mitigation, preparedness, response, and recovery.

1-Mitigation

Mitigation efforts attempt to prevent hazards from developing into disasters altogether, or to reduce the effects of disasters when they occur. The mitigation phase differs from the other phases because it focuses on long-term measures for reducing or eliminating risk. The implementation of mitigation strategies can be considered a part of the recovery process if applied after a disaster occurs. However, even if applied as part of recovery efforts, actions that reduce or eliminate risk over time are still considered mitigation efforts.

Mitigative measures can be structural or non-structural. Structural measures use technological solutions, like flood levees. Non-structural measures include legislation, land-use planning (e.g. the designation of nonessential land like parks to be used as flood zones), and insurance. Mitigation is the most cost-efficient method for reducing the impact of hazards. However, mitigation is not always suitable and structural mitigation in particular may have adverse effects on the ecosystem.

A precursor activity to the mitigation is the identification of risks. Physical risk assessment refers to the process of identifying and evaluating hazards. In risk assessment, various hazards (e.g. earthquakes, floods, riots) within a certain area are identified. Each hazard poses a risk to the population within the area assessed. The hazard-specific risk combines both the probability and the level of impact of a specific hazard. However, if there is no vulnerability there will be no risk, e.g. an earthquake occurring in a desert where nobody lives.

2- Preparedness

In the preparedness phase, emergency managers develop plans of action when the disaster strikes. Common preparedness measures include:-

- Communication plans with easily understandable terminology and chain of command
- Development and practice of multi-agency coordination and incident command
- Proper maintenance and training of emergency services
- Development and exercise of emergency population warning methods combined with emergency shelters and evacuation plans.

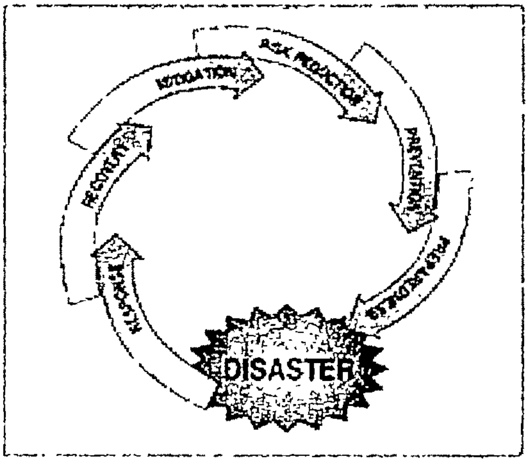
Another aspect of preparedness is casualty prediction, the study of how many deaths or injuries to expect for a given kind of event. This gives planners an idea of what resources need to be in place to respond to a particular kind of event.

3- Response

The response phase includes the mobilization of the necessary emergency services and first responders in the disaster area. This is likely to include a first wave of core emergency services, such as firefighters, police and ambulance crews. They may be supported by a number of secondary emergency services, such as specialist rescue teams. In addition volunteers and non-governmental organizations (NGOs) such as the local Red Cross branch may provide immediate practical assistance, from first aid provision to providing food and counseling. A well-rehearsed emergency plan developed as part of the preparedness phase enables efficient coordination of rescue efforts. Emergency plan rehearsal is essential to achieve optimal output with limited resources. In the response phase, medical assets will be used in accordance with the appropriate triage of the affected victims.

4-Recovery

The aim of the recovery phase is to restore the affected area to its previous state. It differs from the response phase in its focus; recovery efforts are concerned with issues and decisions that must be made after immediate needs are addressed. Recovery efforts are primarily concerned with actions that involve rebuilding destroyed property, reemployment, and the repair of other essential infrastructure. An important aspect of effective recovery efforts is taking advantage of a 'window of opportunity' for the implementation of mitigative measures that might otherwise be unpopular. Citizens of the affected area are more likely to accept more mitigative changes when a recent disaster is in fresh memory.



A graphic Representation of the Phases in Disaster Management

Disaster Management in Libraries

Disaster management has moved to the forefront of library and archive concerns, due to the considerable increase of natural disasters in the past decade, but also because of the vast and varying collections of information in both physical and digital manifestations, that are the most valuable assets that many of these organizations possess. In Wellheiser and Scott's extensive volume, An Ounce of Prevention (2002), the importance of integration in disaster management is emphasized.

They recognize that "collections and records can only be responsibly protected within the context of the mandate goals and services of the entire organization". The planning and implementation of a disaster recovery plan must be understood by the entire organization that it is not a quick fix, "it is not possible to extinguish the fires or contain the floods and quickly return to normal operations" .In the event of a disaster, there is a "ripple effect" that may require extraordinary efforts, resulting in suspended period before the status quo can be returned .A disaster management plan or disaster recovery plan is designed to prevent catastrophic damage from happening and ease the process of recovering from any damage that is incurred, "enabling people to overcome the confusion and turmoil created by a disaster and providing preplanned and rehearsed courses of action."

The creation of a disaster plan is a process that involves the cooperation of a number of entities within and without an organization. . A DPT or Disaster Planning Team should consist of personnel from each area of the library or archive, so as to gain all available input, experience, and participation. Muir and Shenton stress the importance of employee participation, saying that the "staff need to know of [the plan's] existence and be trained to prepare for the worst". One of the most commonly occurring reasons for a disaster plan's failure is lack of awareness on the part of the staff.

Objectives of Disaster Management in Libraries:-

- To protect people, libraries and materials
- To avoid a disaster by being pro-active
- To reduce possibility of a disaster and to reduce effects if a disaster happens
- To expedite response and recovery efforts in an organized and systematic manner.

Disaster Types in Libraries

There are broadly two types of disasters occurring in libraries. They are:-

1) Natural Disasters
2) Man-made disasters

Natural disasters can again be classified in the following way:-

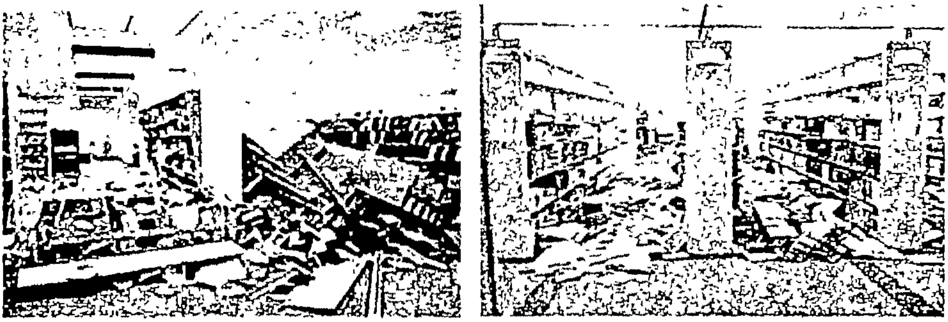
i) Earthquake ii) Fire iii) Flood iv) Insect and rodents v) Landslide vi) Storms viii) Tsunami

Disaster by Earthquakes

An earthquake (also known as a quake, tremor or temblor) is the result of a sudden release of energy in the Earth's crust that creates seismic waves. The seismicity or seismic activity of an area refers to the frequency, type and size of earthquakes experienced over a period of time. Earthquakes are measured using observations from seismometers.

Earthquakes strike suddenly, without warning and can occur at any time of the year and any time of the day or night. Libraries can be prepared for an earthquake as follows:-

☐ By identifying safe places in the library and in the building, under a table or desk, against an interior wall away from windows, bookcases or tall furniture
☐ By bolting bookcases and tall furniture to the wall
☐ Strapping computers, televisions or video equipment and bracing or anchoring heavy objects
☐ Securing books as they can become missiles during an earthquake. Trying to shelve heavy books on the lower shelves.
☐ Not having open shelves in the offices. Have strong latches in the cabinets to ensure they remain shut during a quake.
☐ Heavy pictures should be braced against the wall and hung away from seating areas
☐ Overhead lighting fixtures should also be braced.
☐ Flexible pipe fittings should be installed to avoid gas or water leaks.
☐ Cracked walls and foundations should be repaired
☐ Staff and patrons should be informed about the earthquake plan and staff should be trained to know what to do when an earthquake occurs.
☐ Earthquake drills should be performed periodically.

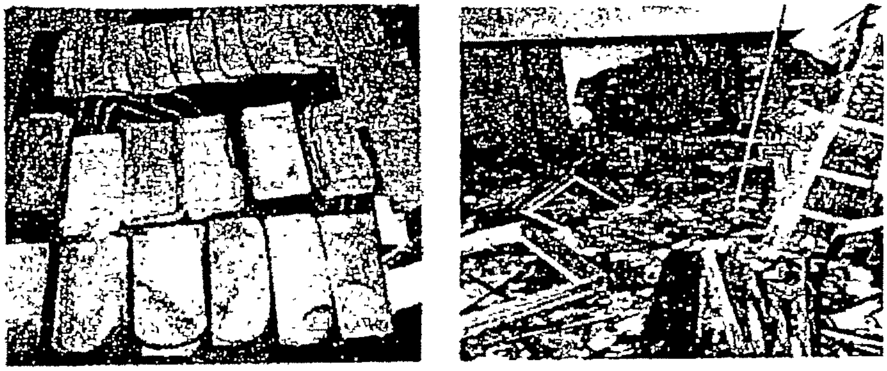


Libraries damaged by earthquake

Disaster by Fire

Fire is the rapid oxidation of a material in the chemical process of combustion, releasing heat, light, and various reaction products. Fire in its most common form can result in conflagration, which has the potential to cause physical damage through burning. Library fires are a very common and very serious risk to collections. From the point of view of survival of collections, popular belief for some decades was that more books and documents were lost to malfunctions and unwanted discharge of water-based fire suppression systems than to fire. This led to deployment of non-aqueous systems, aqueous systems based on keeping sprinkler pipes filled with air rather than water until a fire triggered the system. Fire may be caused by burning match's sticks, candles, lamps, cigarette ends and electrical defects. The following preventive steps should be taken:

1. The stacking material should be fire-proof.
2. No candle and lamps should be used without protective covering or glass shades.
3. A covered-in-lamp should be used for sealing purposes. It should be lighted by automatic lighters. If match stick is used, it should be completely put out and thrown out.
4. Smoking should not be allowed within the stacks. However, if no special smoking lounge is provided, reading room and other places visited by readers should be equipped with ash trays for depositing match sticks and cigarette ends.
5. No inflammable article like kerosene, petrol, rags and waste paper etc. should be kept in the open.
6. The canteen should be located bit far from the stacks.



Libraries damaged by fire

Disaster by Flood

The term "flood" is a general or temporary condition of partial or complete inundation of normally dry land areas from overflow of inland or tidal waters or from the unusual and rapid accumulation or runoff of surface waters from any source. Flooding and flash flooding are the deadliest of natural disasters. A flood can happen during a myriad of events, including heavy rainfall and overflowing river banks.

The creation of flood plains and winding streams are two of the best ways to hinder the accumulation of water by providing a route for the drainage of water. Also, the protection of wetlands helps to maintain a natural drainage system to provide a place for the excess water to gather. Such devices allow the water to evaporate before it can accumulate, creating flooding conditions.

Levees also impede the collecting of water. Levees are embankments composed of soil and earthen material that are used to prevent annual flooding in many areas. With a levee, a huge amount of rain water is required before flooding occurs. However, one drawback to their use is that if water is able to get past the levees, then the flooding is significantly worse and causes several times more damage.

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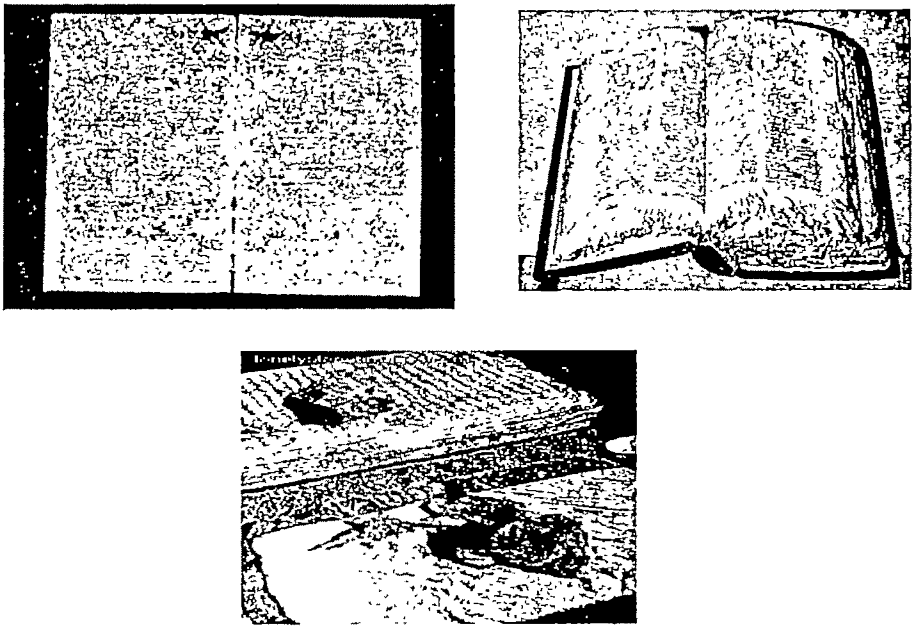
Disaster by Insects and Rodents

The primary biological agents that cause damage to library and archival collections are mold, rodents, and insects, although dogs, cats, birds, and humans also harm materials. Mold damage can pose a serious threat, especially to institutions located in a hot, humid climate or near a large body of water where humidity is high. Mold spores are ever-present in the environment. Mold damage can be devastating, and measures should be taken to avoid its occurrence. The most important measures are maintaining proper levels of temperature and relative humidity, good circulation of air, and clean, clutter-free storage areas. Ideally temperature should never go above 70°F or relative humidity above 50%. The higher the temperature and humidity, the greater is the risk of mold. If a water-related emergency occurs, such as a flood or fire, wet materials should be dealt with immediately before mold develops.

Once mold appears, the affected items should be isolated from the collection. Gloves and a respirator should be worn when handling moldy materials. The items should be dried thoroughly and, once they are dry, the mold should be removed from them. A conservator should be contacted for advice on how best to do this given the particular circumstances.

Library and archival materials are appetizing to rodents and insects, and all possible steps should be taken to control them. They are attracted by clutter and food remains. Clutter, dust, and dirt should not be allowed to accumulate, and storage areas should be kept clean at all times. Eating and drinking should be prohibited in buildings containing collections, especially in storage areas. Staff members should eat only in a staff room that is located as far away from collections as possible. All garbage receptacles containing food should be removed from buildings every day.

High temperature and, in particular, high relative humidity also encourage rodent and insect activity so these should be controlled. Windows, doors, and vents should be kept closed as much as possible because insects enter through these. Buildings should be well maintained because cracks or breaks in the building fabric are another point of entry. Grass and plantings should be trimmed back at least 18 inches from any building that houses collections. If possible all materials entering the building should be checked for rodents and especially insects. This includes new items for the collection, items being returned after a loan, and all equipment, supplies, and packing materials. A program of integrated pest management should be implemented.

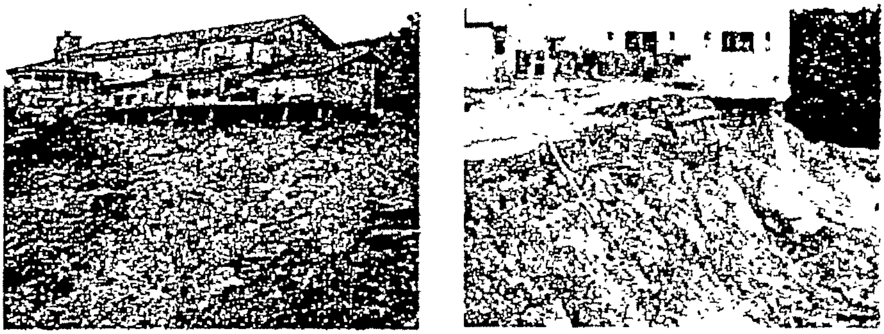


Books damaged by insects

Disaster by Landslide

A landslide or landslip is a geological phenomenon which includes a wide range of ground movement, such as rock falls, deep failure of slopes and shallow debris flows, which can occur in offshore, coastal and onshore environments. A landslide is the gravitational movement of a mass of rock, earth or debris down a slope. Landslides are usually classified on the basis of the material involved (rock, debris, earth, mud) and the type of movement (fall, topple, avalanche, slide, flow, spread). Thus, the generic term landslide also refers to mass movements such as rock falls, mudslides and debris flows. Volcanic mudflows and debris flows are also called lahars.

Landslides are a major hazard in most mountainous and hilly regions as well as in steep river banks and coastlines. Their impact depends largely on their size and speed, the elements at risk in their path and the vulnerability of these elements. Every year landslides cause fatalities and result in large damage to infrastructure (roads, railways, pipelines, artificial reservoirs, etc.) and property (buildings, agricultural land, etc.). Libraries in the hilly areas are prone to disasters caused by landslides.



Libraries damaged by landslides

Disaster by Storms

Storms are created when a center of low pressure develops, with a system of high pressure surrounding it. Small, localized areas of low pressure can form from hot air rising off hot ground, resulting in smaller disturbances such as dust devils and whirlwinds. These cause severe damage to the libraries.

Libraries damaged by storms

Disaster by Tsunami

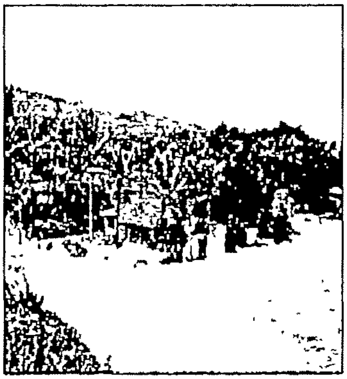
A tsunami represented by two characters: "tsu" and "nami". The character "tsu" means harbor, while the character "nami" means wave. In the past, tsunamis were often referred to as "tidal waves" by many English speaking people. Tsunamis are not caused by the tides, nor are they related to the tides, though a tsunami striking a coastal area is influenced by the tide level at the time of impact. The scientific community once referred to tsunamis as "seismic sea waves". "Seismic" implies an earthquake-related mechanism of generation, which is often, but not always the case.

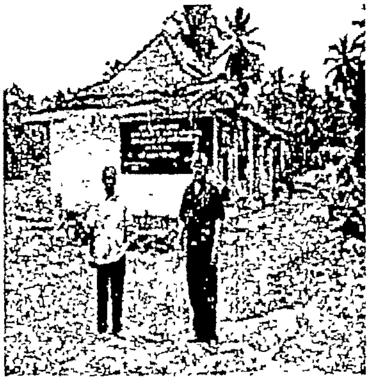
Library damage resulting from the 2004 Indian Ocean earthquake has been reported in six Asian countries. On December 26, the massive 2004 Indian Ocean earthquake struck off of the northwest coast of the Indonesian island of Sumatra. The resulting tsunamis killed more than 180,000 people. In addition to the loss of human lives, cultural institutions were destroyed in several Asian nations. Libraries on the Eastern coast of Sri Lanka and the northern province of Aceh on Sumatra were most severely affected by the disaster.

Detecting tsunamis is a very difficult thing to do. When a wave begins in the deep ocean waters, it may only have a height of about twelve to twenty-three inches and look like nothing more than the gentle rise and fall of the sea surface.

The man made disasters may be classified as:-

i) Technological disaster (ii) Chemical Disaster (iii) Disasters by human beings





Technological Disaster

Manmade or technological disasters are unpredictable, can spread across geographical boundaries, may be unpreventable, and may have limited physical damage but long-term effects. Some disasters in this class are entirely manmade, such as terrorism. Other technological disasters occur because industrial sites are located in communities affected by natural disasters, equipment failures occur, or workers have inadequate training or fatigue and make errors. The threat of terrorism is categorized as a potential technological disaster and includes bioterrorism, bombings, civil and political disorders, riots, and economic emergencies.

Technological disasters include a broad range of incidents. Routes of exposure are water, food and drink, airborne releases, fires and explosions, and hazardous materials or waste (e.g., chemical, biological, or radioactive) released into the environment from a fixed facility or during transport. Fires, explosions, building or bridge collapses, transportation crashes, dam or levee failures, nuclear reactor accidents, and breaks in water, gas, or sewer lines are other examples of technological disasters.

A technology-caused disaster is the breakdown of a technological system due to human action which could result in harm to people and all creation. The response to a technology-caused disaster includes prevention, mitigation, preparation, response and recovery. The response to a technology-caused disaster does not include providing food, clothing, temporary shelter, blankets and other material resources. A technology-caused disaster can be an accidental spill, a deliberate or careless release, an illegal or badly designed disposal or storage area, or a leak from such an area. It can be a transportation accident, "sick" buildings, or workplace or mining hazards that get out of control. The affected elements can be air, soil, water, and animals in the human food chain -- and the human body.

Chemical Disaster

The environment in industrial cities like Mumbai is highly polluted. It contains pollutants like dust, smoke, coke dust, fly ash, salt particles, calcium, ammonium sulphate, nitrates, chlorides, solid oxides, soot tars, and gases like carbon monoxide, nitric oxide, nitrous oxide, sulphur dioxide, ozone, olefins, aromatic hydrocarbons, aldehydes, ketones, paraffin's, hydrogen sulphide, halogen compounds and ammonia. All these factors lead to increase the acidity of the documents. De-acidification methods can be used to remove the acid content and increase the longevity of documents. The Library of Congress estimates that de-acidification can prolong the life span of paper-based library materials by 250 to 300 years.

The chemical agents are:-

- Dust and Dirt

- Internal Acidity of Paper and Ink
- Air Pollution and Atmospheric Gases

- **Dust and Dirt :-**

Fine dry particles of any matter present in the air are known as dust. Dust, which is highly dangerous for the library and archival collection, composed of soil, tar, metallic substances, fungus spores and moisture among other things. Since dust is air borne it settles down on any surface of the object. Dust is hygroscopic in nature and when it is mixed with high humidity, it is transformed into dirt and if this dirt sticks to the surface of the books, it becomes difficult to remove. Dust and dirt are sources of both physical and chemical degradation of the library collection.

- **Air Pollution and Atmospheric Gases: -**

Humidity is the amount of moisture in the atmospheric air. The moisture is measured in terms of relative humidity. All organic objects absorb water to a greater or lower extent and the water goes inside the object through surrounding air. Because of this absorbency property, the paper absorbs more moisture when there is high humidity.

- **Internal Acidity of Paper and Ink:-**

It also weakens the sizing elements of paper and causes spreading of ink. Moisten pages of book often stuck together. It also accelerates various types of chemical deterioration as a result of which paper becomes yellow and stained with spots. Moisture also promotes the growth of fungus, which cause damage to paper and book binding materials.

If the air pollution is controlled there will not be any external acidity in the paper materials. One of the best ways of controlling atmospheric pollutants is filtering of the air intake in to storage areas, which can be attained by air conditioning system operating for 24 hours throughout the year. Without this facility simple measures like wrapping the books and manuscripts in cloth or placing them in book containers reduces the effects of pollution to a great extent. The books kept inside cupboards are better protected than those which are kept outside. Documents kept inside folders are safer than those which are kept in the open. Proper care should be taken to save books and documents from dust. It is preferable to use vacuum cleaner and fine brushes for dusting of shelves and books. No chemical formulations should be directly applied on to the book covers, since these may have an adverse effect on the books as well as users of the books and staff of the library. Wooden storage should be avoided as it gives off volatile acidic vapors. If it is to be used it must be covered with coats of acrylic emulsion paint. Besides, acid free paper, board and good quality materials should be used for repair and restoration of documents.

Air conditioning of the stack area round the clock is an ideal example of maintaining optimum temperature & humidity for the storage of documents. But it is practically not possible for all the libraries to afford for air conditioning for 24 hours. So it is useful to adopt local control measures like use of humidifiers in dry climate to increase required level of moisture content and dehumidifiers to remove moisture in wet seasons. These may be operated whenever necessary for which proper monitoring of relative humidity is highly essential.

Disasters by Human Beings

Mutilation of library materials is a serious problem faced by all libraries. Library materials are subject to a range of intentional mutilation. Some people like to write notes, highlight, or annotate a text in books they've borrowed. Others mutilate books to convey a personal message of political, religious, or social belief. Books and journal articles are cut out because people can't be bothered to use the photocopier. Theft is another major problem faced by libraries. A few instructions that can be given by librarians to users to prevent damage by human beings are:-

- Photocopy what you need without putting excessive pressure on the volume.
- Take notes on paper, not in the book.
- Put away your highlighter when using library books.
- Find an appropriate place to voice your opinions other than in library materials.
- If you find defaced or damaged materials, please bring them to the nearest service desk.
- If you see people damaging library materials remember, it is your money they're wasting! Report them immediately to the nearest service desk.

The Advantages of Disaster Management:

- Developing a disaster recovery / business continuity plan will help identify areas of concern.
- Effort can be concentrated on the top 10 events/issue, or the events which have the more importance to the project, the greatest size/value, the most complex or those with a stability/novelty or unknown element.
- Having a plan can help influence the future procurement of new capabilities and services, and even help to dictate where they should be located in order to improve the disaster management in future.
- Issues/events can have owners responsible for ensuring processes that are implemented, people are trained, and regular update reports on progress are provided to senior management.
- Future budgets can be set for future improvements.
- It improves corporate knowledge and experience and can prompt people to think laterally and look for alternative solutions, if reviewed regularly.

- Doing something is always better than doing nothing.

The Disadvantages of Disaster Management:-

- It can cost a lot of money to develop and implement.
- It can take a lot of effort to do it properly, away from the projects themselves.
- It is not worth doing if it is not done properly.
- It costs money to keep it current and update the systems periodically.

CONCLUSION

While disaster management is a complicated and seemingly overwhelming task for any library or archive to undertake, it is necessary for the safety of personnel and library resources should the worst happen. Through careful planning and diligence, catastrophic damage can be prevented or minimized and normal operations returned in the event of a disaster. There is a wealth of information written specifically in the field of library and archives that can aid managerial staff in the design and implementation of their own disaster management and recovery plan. This vital organizational tool cannot and should not be ignored, lest the worst become the end of a library or archive, due to lack of preparation and planning.

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[Tutorial Article]

Traits and Theories of Personality: An overview

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ABSTRACT:

Understanding personality has proved to be a difficult and challenging task. It's so complex that no single theory is able to cover the total personality. The aim of the paper is to focus different theories of personalities. Librarian having capability of judging users personality can have a good idea of what they can offer. The paper also describes the importance of personality development among the information professionals in the knowledge based or information based society.

KEYWORDS: Personality, Personality Traits, Attitude, Myers-Briggs Type Indicator, etc.

1. INTRODUCTION:

In the present context of library and information profession personality development is very essential. The concept of personality must be hypothetically understood (Ryckman, 1982). No clear neurological ground can be found for it, although attempts have been made to describe the basis of personality in terms of neurophysiology (Rowe, 1989) or cortical dopamine activity (Pickering & Gray, 2001). There are many theories of personality each provides different answers about the way they treat the issues about personality functioning. In particular, they provide different explanations about the role of conscious/unconscious factors, determinism/freedom in functioning, role of early experience, role of genetic factors, uniqueness/universality etc. The librarian is entirely brought under the microscope and the individual holds focal point of all services, including personality and attitude in the course of the librarian's work and duty.

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[2] Librarian

Personality development belongs to an individual's psychological traits, characteristics, motive, habits, attitudes, beliefs, education, outlooks and resources. Librarian plays a key role to associate all these above factors.

In a restricted sense the librarian works as an information provider or information manager depending upon the user's need. Librarians play a vital role in building library resources, processing materials for their easy access, running various literacy programmes, providing a comfortable environment for study, research, educational and recreational activities through different sources. For example: If an individual who is illiterate enters a library, he can learn something by observing how a library is set-up. He could learn by looking up maps, charts, audio visual materials etc. He in turn could be an example to others through his own attitude and personality. However the progress, image and prestige largely depend on the quality of the individuals associated with that profession. To develop one's personality the librarian/ information professional can suggest the following three important aspects.

I. Awareness
II. Education and living standard
III. Research and leisure

2. PERSONALITY AND ATTITUDE:

2.1 Personality:-

Personality is that pattern of characteristic thoughts, feelings, and behaviours that distinguishes one person from another and that persists over time and situation. The concept of personality must be hypothetically understood and its structure is fairly stable and predictable throughout different situations and time.

"Personality refers to the relatively stable pattern of behaviour and consistent internal states that explain a person's behavioural tendencies." Basically personality can be categorized as:

- External Appearances and behaviour
- The inner awareness of self as a permanent organizing force

2.2 Attitude:-

Attitude is the underlying way we think, feel and act – how we react to the world around us. It determines the quality and effectiveness of all of our thinking, emotions and behavior and thereby, the positive or negative consequences of such behavior. Attitude is based upon our expectation and perceptions. Attitude is thing we depend upon as a life time companion – jobs and relationships come and go, but our attitude is always with us. We can't take a vacation from ourselves. Attitude can be defined as:

"Attitudes are a lasting evaluation of various aspects of the social world – evaluation that is stored in out memory"
"Attitudes are associations between attitudes objects (virtually any aspect of the social world) and an evaluation of those objects."

3. REQUIREMENTS TOWARDS A SOUND PERSONALITY DEVELOPMENT:

- Clarity of goals and purpose in life
- Doing beyond expectation
- Learning from failures
- Initiatives
- Enthusiasm
- Character and personality
- Self-discipline
- Positive mental attitude
- Managing capability
- Sound physical and mental health
- Team work
- Hard work
- Growing in one's knowledge and skills
- Desiring pleasure and excitement

4. PERSONALITY TRAITS:

There are personality traits of different depth and significance. A type refers to categories that are distinct and discontinuous. e.g. you are one or the other. This is important to understand, because it helps to distinguish a personality type approach from a personality trait approach, which takes a continuous approach.

- A personality type approach says that a person is either an introvert or an extravert
- A personality trait approach says that a person can be anywhere on a continuum ranging from introversion to extraversion, with most people clustering in the middle, and fewer people towards the extremes

4.1 The Four Humors - Ancient Greeks (~2000 BC - 0 AD)

Ancient Greek philosophers such as Hippocrates 400 BC and Galen, 140/150 AD classified 4 types of "humors" in people. Each type was believed to be due to an excess of one of four bodily fluids, corresponding to their character. The personalities were termed "humors".

Character	Humor	Fluid
Irritable	Choleric	yellow bile
Depressed	Melancholic	black bile
Optimistic	Sanguine	blood
Calm	Phlegmatic	phlegm

4.2 Somatotypes - William Sheldon, 1940's

William Sheldon classified personality according to body type. He called this a person's ***somatotype***. Sheldon identified three main somatotypes:

Sheldon's Somatotype	Character	Shape
Endomorph [viscerotonic]	relaxed, sociable, tolerant, comfort-loving, peaceful	plump, buxom, developed visceral structure
Mesomorph [somatotonic]	active, assertive, vigorous, combative	muscular
Ectomorph [cerebrotonic]	quiet, fragile, restrained, non-assertive, sensitive	lean, delicate, poor muscles

5. THEORIES OF PERSONALITY:

5.1 Carl Jung's Personality Concept:

One of the more influential ideas originated in the theoretical work of Carl Jung as published in the book *Psychological Types*. According to Carl G. Jung's typology people can be classified using two mental functions (sensing-intuition and thinking-feeling) and attitude (extraversion-introversion).

Jung proposed four main functions of consciousness:

- **sensation** - perception by means of the sense organs;
- **intuition** - perceiving in unconscious way or perception of unconscious contents.
- **thinking** - function of intellectual cognition; the forming of logical conclusions;
- **feeling** - function of subjective estimation;

'Jung Typology Profiler for Workplace' (JTPW) determines an individual's Personality Type. It also provides personalized, dynamic descriptions of Jung's personality types, focused on workplace-related aspects such as understanding of an individual's behavior at work, preferred activities, decision making, problem solving, creativity, change management, conflict management, team building, leadership, career development and interpersonal style.

5.2 **Modern Theories**: closely associated with Jung's personality types

i) Keirsey Temperament Sorter:

David Keirsey expanded on the ancient study of temperament by Hippocrates and Plato. In his works, Keirsey used the names suggested by Plato: Artisan (iconic), Guardian (pistic), Idealist (noetic), and Rational (dianoetic). Keirsey divided the four temperaments into two categories (roles); each with two types (role variants) and describes the types of personality as:

- **Artisans** are concrete and pragmatic. Their greatest strength is *tactics*. They excel at troubleshooting, agility, and the manipulation of tools, instruments, and equipment. The two roles are: *Operators and Entertainers*
- **Guardians** are concrete and cooperative. Their greatest strength is *logistics*. They excel at organizing, facilitating, checking, and supporting. The two roles are as: *Administrators and Conservators*
- **Idealists** are abstract and cooperative. Their greatest strength is *diplomacy*. They excel at clarifying, individualizing, unifying, and inspiring. The two roles are as: *Mentors and Advocates*
- **Rationals** are abstract and pragmatic. Their greatest strength is *strategy*. They excel in any kind of logical investigation such as engineering, conceptualizing, theorizing, and coordinating. The two roles are as: *Coordinators and Engineers.*

The KTS is closely associated with the Myers-Briggs Type Indicator (MBTI); however, there are significant practical and theoretical differences between the two personality questionnaires and their associated different descriptions.

ii) Myers-Briggs Type Indicator:

The Myers-Briggs Type Indicator (MBTI) assessment is a psychometric questionnaire designed to measure psychological preferences in how people perceive the world and make decisions. The original developers of the personality inventory were Katharine Cook Briggs and her daughter, Isabel Briggs Myers. Fundamental to the Myers-Briggs Type Indicator is the theory of psychological type as originally developed by Carl Jung. From Jung's original concepts, Briggs and Myers developed their own theory of psychological type, on which the MBTI is based. Briggs and Myers theorized that individuals naturally *prefer* one overall combination of type differences. In the same way that writing with the left hand is hard work for a right-hander, so people tend to find using their opposite psychological preferences more difficult, even if they can become more proficient (and therefore behaviorally flexible) with practice and development.

The abbreviation used:

ESTJ: extraversion (E), sensing (S), thinking (T), judgment (J)
INFP: introversion (I), intuition (N), feeling (F), perception (P)

Myers-Briggs literature uses the terms *extraversion* and *introversion* as Jung first used them. Briggs and Myers recognized that each of the cognitive functions can operate in the external world of behavior, action, people, and things (*extraverted attitude*) or the internal world of ideas and reflection (*introverted attitude*). The MBTI assessment sorts for an overall preference for one or the other.

Contrasting characteristics between extraverts and introverts include the following:

- Extraverts are *action* oriented, while introverts are *thought* oriented.
- Extraverts seek *breadth* of knowledge and influence, while introverts seek *depth* of knowledge and influence.
- Extraverts often prefer more *frequent* interaction, while introverts prefer more *substantial* interaction.
- Extraverts recharge and get their energy from spending time with *people*, while introverts recharge and get their energy from spending time *alone*.

According to the Myers-Briggs typology model, each person uses one of these four functions more dominantly and proficiently than the other three; however, all four functions are used at different times depending on the circumstances. The MBTI indicator is frequently used in the areas of pedagogy, career counseling, team building, group dynamics, professional development, marketing, family business, leadership training, executive coaching, life coaching, personal development, marriage counseling, and workers' compensation claims.

iii) Socionics

Socionics, in psychology, is a theory of information processing and personality type, distinguished by its information model of the psyche (called **Model A**) and a model of interpersonal relations. Socionics is a modification of Jung's personality type theory which uses eight psychic functions, in contrast to Jung's model. These functions process information at varying levels of competency and interact with the corresponding function in other individuals, giving rise to predictable reactions and impressions—a theory of **intertype relations**. The central idea of socionics is that information is intuitively divisible into eight categories, called **information aspects** or **information elements**, which a person's psyche processes using eight **psychological functions**. The 8 socionics symbols (■ ▙● ▲□∟○△) were introduced by Augusta while working with Jung's typology and remain the dominant method of denoting the functions and the corresponding information aspects that they process.

Element	Abstracted definition	English Acronym	Symbol
Extraverted logic (thinking)	external dynamics of objects	Te	■
Extraverted ethics (feeling)	internal dynamics of objects	Fe	▙
Extraverted sensing	external statics of objects	Se	●
Extraverted intuition	internal statics of objects	Ne	▲
Introverted logic (thinking)	external statics of fields	Ti	□
Introverted ethics (feeling)	internal statics of fields	Fi	∟
Introverted sensing	external dynamics of fields	Si	○
Introverted intuition	internal dynamics of fields	Ni	△

5.3 Other Theories: -

i) 16 Personality Factors:

Raymond Cattell developed the personality factors in the 1940s and 1950s by scientifically sampling the widest possible range of behaviors, including using ratings by observers, questionnaires, and objective measurements of actual behavior. Cattell referred to the 16 *primary factors* as -

> Warmth (A); Reasoning (B); Emotional Stability (C); Dominance (E); Liveliness (F); Rule-Consciousness (G); Social Boldness (H); Sensitivity (I); Vigilance (L); Abstractedness (M); Privateness (N); Apprehension (O); Openness to Change (Q1); Self-Reliance (Q2); Perfectionism (Q3) and Tension (Q4)

He then factored these primary traits (i.e., performed a second-order factor analysis) and discovered a smaller number of over-arching personality factors or domains that provided the overall structure and meaning for the primary traits. He labeled these Second-Order or *Global Factors*. For example, Extraversion was found to be a Global Factor that contained primary factors Warmth/Reserve (A), Social Boldness/Shyness (H), Liveliness/Seriousness (F), Group-Orientation/Self-Sufficiency (Q2), and Forthrightness/Privatness (N). Thus, these factors were seen to represent a fairly comprehensive analysis of the basic dimensions of human personality.

ii) Big Five Personality Traits:

In contemporary psychology, the **"Big Five" factors** (or **Five Factor Model; FFM**) of personality are five broad domains or dimensions of personality which are used to describe human personality. The Big Five factors are openness, conscientiousness, extraversion, agreeableness, and neuroticism (common acronyms are OCEAN, NEOAC, or CANOE).

- **Openness to experience** – (inventive/curious vs. consistent/cautious). Appreciation for art, emotion, adventure, unusual ideas, curiosity, and variety of experience.
- **Conscientiousness** – (efficient/organized vs. easy going/careless). A tendency to show self-discipline, act dutifully, and aim for achievement; planned rather than spontaneous behaviour.
- **Extraversion** – (outgoing/energetic vs. solitary/reserved). Energy, positive emotions, surgency, and the tendency to seek stimulation in the company of others.
- **Agreeableness** – (friendly/compassionate vs. cold/unkind). A tendency to be compassionate and cooperative rather than suspicious and antagonistic towards others.
- **Neuroticism** – (sensitive/nervous vs. secure/confident). A tendency to experience unpleasant emotions easily, such as anger, anxiety, depression, or vulnerability.

The Big Five model is a comprehensive, empirical, data-driven research finding. Identifying the traits and structure of human personality has been one of the most fundamental goals in all of psychology.

iii) DISC Assessment:

DISC is a quadrant behavioral model based on the work of Dr. William Moulton Marston to examine the behavior of individuals in their environment or within a specific situation (otherwise known as environment). It therefore focuses on the styles and preferences of such behavior.

Research found that characteristics of behavior can be grouped into these four major "personality styles" and they tend to exhibit specific characteristics common to that particular style. All individuals possess all four, but what differs from one to another is the extent of each.

The assessments classify four aspects of behavior by testing a person's preferences in word associations (compare with Myers-Briggs Type Indicator). DISC is an acronym for:

- Dominance – relating to control, power and assertiveness
- Influence – relating to social situations and communication

- Steadiness (submission in Marston's time) – relating to patience, persistence, and thoughtfulness
- Compliance (or caution, compliance in Marston's time) – relating to structure and organization

DISC is used in an assortment of areas in the organization - HR professionals, organizations, consultants, coaches and trainers.

iv) Eysenck's Three Factor Model (P–E–N):

Eysenck's three factor model was devised by the psychologists Hans Jurgen Eysenck. The two personality dimensions, Extraversion (E) and Neuroticism (N), were described in his book *Dimensions of Personality.* E and N provided a 2-dimensional space to describe individual differences in behaviour. An analogy can be made to how latitude and longitude describe a point on the face of the earth. Eysenck also noted how these two dimensions were similar to the four personality types.

- High N and High E = Choleric type
- High N and Low E = Melancholic type
- Low N and High E = Sanguine type
- Low N and Low E = Phlegmatic type

The third dimension, psychoticism, was added to the model in the late 1970s. The major strength of Eysenck's model was to provide detailed theory of the causes of personality.

v) Eysenck Personality Questionnaire:

Eysenck Personality Questionnaire (EPQ) is a questionnaire to assess the personality traits of a person. It was devised by the psychologists Hans Jurgen Eysenck and his wife Sybil B. G. Eysenck. It is based primarily on physiology and genetics. He was primarily interested in what is usually called temperament. The dimensions of personalities are already discussed in Eysenck's three factor model. The following table describes the traits that are associated with the three temperaments in Eysenck's model of personality:

Psychoticism	**Extraversion**	**Neuroticism**
Aggressive	Sociable	Anxious
Assertive	Irresponsible	Depressed
Egocentric	Dominant	Guilt Feelings
Unsympathetic	Lack of reflection	Low self-esteem
Manipulative	Sensation-seeking	Tense
Achievement-oriented	Impulsive	Moody
Dogmatic	Risk-taking	Hypochondriac
Masculine	Expressive	Lack of autonomy
Tough-minded	Active	Obsessive

vi) Four Temperaments:

Temperament theory has its roots in one of the ancient four humors theory. It may have origins in ancient Egypt or Mesopotamia. The four temperamental categories Galen named "sanguine", "melancholic", "choleric" and "phlegmatic" after the bodily humors. Each of the four types of humours corresponded in ancient times to a different personality type.

- **Sanguine-** Sociable and emotional. They tend to enjoy social gatherings, making new friends and tend to be boisterous and often daydream. They are talkative and not shy.
- **Choleric-** Ambitious and leader-like. They have a lot of aggression, energy, and/or passion, and try to instill it in others. Many great charismatic military and political figures were choleric. They like to be in charge of everything.
- **Melancholic-** Introverted and thoughtful. Melancholic people often were perceived as very (or overly) pondering and considerate, getting rather worried when they could not be on time for events.
- **Phlegmatic-** Relaxed and quiet, ranging from warmly attentive to lazily sluggish. They tend to be content with themselves and are kind, accepting and affectionate. They are consistent, relaxed, calm, qualities that make them good administrators.

vii) Five Temperaments:

Five temperaments is a theory that expands upon the Four Temperaments proposed in ancient medical theory. It is a measure of interpersonal relations orientations that calculates a person's behavior patterns based on the scoring of a questionnaire. Its roots are in the ancient four humors theory of the Greek Historian Hippocrates. This is also related to the classical elements of air, water, earth, and fire; as sanguine, phlegmatic, melancholic, and choleric, respectively. They made up a matrix of *hot/cold* and *dry/wet* taken from the Four Elements. It was observed that pairs of temperaments shared certain traits in common.

- **sanguine** quick, impulsive, and relatively short-lived reactions. (hot/wet)
- **phlegmatic** a longer response-delay, but short-lived response. (cold/wet)
- **choleric** short response time-delay, but response sustained for a relatively long time. (hot/dry)
- **melancholic** (Also called "Melancholy") long response time-delay, response sustained at length, if not, seemingly, permanently. (cold/dry).

viii) Fundamental Interpersonal Relations Orientation:

Fundamental interpersonal relations orientation (FIRO) is a theory of interpersonal relations, introduced by William Schutz in 1958. This theory mainly explains the interpersonal underworld of a small group. The theory is based on the belief that when people get together in a group, there are three main interpersonal needs they are looking to obtain – affection/openness, control and inclusion. Schutz developed a measuring instrument that contains six scales of nine-item questions that he called FIRO-B. This technique was created to measure or control how group members feel when it comes to inclusion, control, and affection/openness or to be able to get feedback from people in a group.

ix) HEXACO Model of Personality Structure:

The HEXACO model of personality structure summarizes human personality characteristics in terms of six dimensions, or factors: Honesty-Humility (H), Emotionality (E), Extraversion (X), Agreeableness (A), Conscientiousness (C), and Openness to Experience (O). Each of these six factors is represented by many related personality characteristics, with some characteristics indicating high levels of the factor and others indicating low levels.

- **Honesty-Humility (H):** sincere, honest, faithful, loyal, modest/unassuming *versus* sly, deceitful, greedy, pretentious, hypocritical, boastful, pompous
- **Emotionality (E):** emotional, oversensitive, sentimental, fearful, anxious, vulnerable *versus* brave, tough, independent, self-assured, stable
- **Extraversion (X):** outgoing, lively, extraverted, sociable, talkative, cheerful, active *versus* shy, passive, withdrawn, introverted, quiet, reserved
- **Agreeableness (A):** patient, tolerant, peaceful, mild, agreeable, lenient, gentle *versus* ill-tempered, quarrelsome, stubborn, choleric
- **Conscientiousness (C):** organized, disciplined, diligent, careful, thorough, precise *versus* sloppy, negligent, reckless, lazy, irresponsible, absent-minded
- **Openness to Experience (O):** intellectual, creative, unconventional, innovative, ironic *versus* shallow, unimaginative, conventional.

Each of the six personality factors is roughly unrelated to the others; therefore, a person's level on any one factor cannot be predicted from his or her levels on the other five.

x) Humorism:

Humorism, or humoralism, is a discredited theory of the makeup and workings of the human body, adopted by Greek and Roman physicians and philosophers, positing that an excess or deficiency of any of four distinct bodily fluids in a person directly influences their temperament and health. The four humors of Hippocratic medicine include black bile (gr. melan chole), yellow bile (gr. chole), phlegm (gr. phlegma), and blood (lat. sanguis), and each corresponds to one of the traditional four temperaments. A humor is also referred to as a cambium (pl. cambia or cambiums).

The four humors, their corresponding elements, seasons, sites of formation, and resulting temperaments alongside their modern equivalents are:

Humour	Season	Element	Organ	Qualities	Ancient name	Modern	Ancient characteristics
Blood	spring	air	liver	warm & moist	sanguine	artisan	courageous, hopeful, amorous
Yellow bile	summer	fire	gall bladder	warm & dry	choleric	idealist	easily angered, bad tempered
Black bile	autumn	earth	spleen	cold & dry	melancholic	guardian	despondent, sleepless, irritable
Phlegm	winter	water	brain/lungs	cold & moist	phlegmatic	rational	calm, unemotional

Type A and Type B personality theory:

The Type A and Type B personality theory (also known as the "Jacob Goldsmith theory") is a theory which describes two common, contrasting personality types—the high-strung Type A and the easy-going Type B—as patterns of behavior that could either raise or lower, respectively, one's chances of developing coronary heart disease.

- Type - A

The theory describes a Type-A individual as ambitious, aggressive, business-like, controlling, highly competitive, impatient, preoccupied with his or her status, time-conscious, and tightly-wound. People with Type-A personalities are often high-achieving "workaholics" who multi-task, push themselves with deadlines, and hate both delays and ambivalence.

- Type - B

The theory describes Type-B individuals as perfect contrast to those with Type-A personalities. People with Type B personalities are generally patient, relaxed, easy-going, and at times lacking an overriding sense of urgency. Because of these characteristics, Type-B individuals are often described as apathetic and disengaged by individuals with Type A or other personality types.

6. Importance of Personality Development:

A major method for fighting against social exclusion is education and professional activity. In this context we mean literary and media education in the primary education level, for this fighting in different educational levels, libraries and librarians are responsible.

Undoubtedly, in the field of education libraries and librarians find an extremely wide scope for educational and other activities. The main role of librarians is to provide the Right Information to the Right consumer at the Right time in the Right manner (library law).

A librarian could serve the society best by utilizing one's social competences such as empathy, persuasion, leadership motivation and cooperation with personality.

For the users personality the task of librarians consist in recognizing, satisfying and developing information, educational scientific, cultural esthetic needs and needs for entertainment. Too many people, the library is often thought of as a place where correct and apt necessary information could be found access to consequently the role of a librarian/ information professional consist in conforming the users and supporting them for creation and recreations.

Libraries are gateways to knowledge and hence provide access to material that enabales one to achieve various objectives such as personality development and lifelong learning. Libraries also establish different physical facilities, information services; literacy programmes to enable effective utilization of resources.

6.1 Importance of personality development among the library professionals:

- As to provide User services, Technical services, and Administrative services.
- Since librarian positions focus on one of the three aspects of library work e.g. instructional role for user services, Technical role and Management role.
- To provide accessible information services: i.e. Library for all.
- To train library users to search Information to Information Literacy.
- To develop analytical and problem solving skills.
- To develop decision making skills.
- To develop verbal, presentation and written skills.
- To develop time management skills.

The Myers Briggs Type Indicator (MBTI) indicates that librarians are process-driven and shortsighted, and tend to shy away from any type of confrontation. The MBTI was used to determine an individual's personality based on four dichotomous scales and Introversion (I), Sensing (S), Feeling (F), Judging (J) i.e. **ISFJ** was the personality type assigned to librarians.

6.2 Importance of judging the personality type of the users:

It is important to judge the type of personality the users poses as to provide better service. An attempt had been made to judge the users according to their type of personality and work accordingly.

- *Reformer* – Suiting the need of a reformer the information professionals must provide information as a perfect work. Since his/her basic desire comprises of goodness, integrity and balance as they always have the mind of having this three aspects as a permanent support in all his work.

- *Achiever* – Their basic fear is the feeling of seeing himself / herself as a worthless person. Since his /her basic desire is being of value to others, whatever he /she does is done with truthfulness so the information professionals dealing to this type of person must focus on his /her value as a resourceful person, and that everything that he /she does is accepted and needed.
- *Individualist* – Since this type of people mostly work alone, therefore they come up with their original piece of work. They are always afraid to find their work as common with others or similar to that of others. They aim for uniqueness and authenticity. Such a person should be dealt as a special individual. The informational professional should provide extra and careful information to such a one.
- *Investigator* – The character trait of an investigator is mainly working as a detached individual. Therefore most of the dealing is marked with much stinginess, but his basic desire urges by them to be competent. The librarian should focus more on developing his competency and less on his feeling of uselessness and helplessness.
- *Loyalist* – A loyalist is always a very faithful person, whatever he / she does, it is done in complete faith and hence his / her virtue focuses on courage. The professionals must provide facts which speak of courage and faith
- *Enthusiast* – An enthusiast is generally excited is everything he / she does. They cannot bear or tolerate boredom. Therefore, the information professional should cater to such a person with complete work full of facts and much planning.
- *Challenger* – A challenger looks for magnanimity, truthfulness and is autonomous in all his / her dealings. Information professionals should bear in mind that such a person's vengeance could stop his or her personality development. Therefore the librarian should focus more on self-protection and less on loss of control of the individual.
- *Peacemaker* – The peacemaker believes in right action, love and stability in mind. They are afraid of any type of loss. A professional should deal with such a person pretending himself / herself as a peacemaker, loving right action and having peace of mind.

7. Conclusion:

The information professionals' role surely is much more than simply providing information. The librarian is the gateway to successful learning knowledge, character building, attitude and personality development. In conclusion, personality development mostly depends on all the above factors including one's attitude and the way of its needs – along with personality development also intellectual and creativity development. The role of librarian for all types of users is to develop basic communication skill, basic computing skill, listening adaptability, ability to work independently and so on. To develop a sound personality one should be honest, trustworthy, respectful, flexible and sensitive. Personality is the psychological behavior that effects the way of living and is handled by the way. Libraries could be the accessories available to a librarian in providing not only factual information but also providing scope for attitude and personality development.

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[Tutorial Article]

Organizational Approaches to Digital Preservation

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Abstract

Digital age creates new delivery and access alternatives for libraries as well as new preservation challenges. This paper defines digitization, digital preservation, types of preservation, and organizational approaches towards digital preservation. Libraries, publishers, and academic associations are seriously combating with the challenges of digital preservation. Various categorizations like Enterprise-Based Preservation, Government-Sponsored preservation, some passionate individual's attempt are discussed in this paper. Few details of the institutional repositories in India also mentioned.

Keywords

Digitization, organizational approach to digital preservation, EBSCO Host, JSTOR

Introduction

Preservation, management and access of digital resources in 21st century have been a great challenge for library and information professionals. Trends of research and learning are increasingly supported by digital information which compels the libraries for a major shift towards digital collection building. Beside the acquiring and buying access to digital collections, libraries are employing efforts on initiating digital library projects in their respective institutions to build their own digital collections.

Most of the research libraries are converting their existing print collections into digital formats or are increasingly capturing collections that are "born digital".

The Wikipedia defines digital preservation "as long-term, error free storage of digital information, with means for retrieval and interpretation, for all the time span that the information is required for", where "retrieval" means obtaining required digital files from the long-term, error-free digital storage, without corrupting the error-free stored digital files and "interpretation" means that the retrieved digital files, which may be texts, charts, images or sounds, are decoded and transformed into usable representations for access to human.

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Digital Preservation Coalition (2006) defines digital preservation as "all activities that are required to maintain access to digital materials beyond the limits of media failure or technological change. Those materials may be digital records created during the day-today business of an organisation, i.e. "born-digital" materials created for a specific purpose (e.g. teaching resources), or the products of digitization projects".

So, Digital preservation is a process by which data is preserved in the digital format for ensuring the usability, durability and intellectual integrity of the information contained therein. A more precise definition is: the storage, maintenance, and accessibility of a digital object over the long term, usually as a consequence of applying one or more digital preservation strategies.

Though digitization is sometimes loosely referred to as preservation, it is clear that digital resources are best when facilitating access to information in a well-equipped modern library but is weakest when assigned the traditional library responsibility of preservation. Digitization is a type of reformatting, like microfilming; it is often confused with preservation microfilming and seen as a superior and more expensive form of preservation reformatting.

Advantages of digital preservation

If an Institutional Repository (IR) is successfully implemented in a local library setup, it then facilitates institution-wide availability through campus-wide network or intranet. It reaches to a wider audience with the implementation of open access institutional repository, and institution convinced is convinced to share it.

- It facilitates self-archiving when researcher wants a place to put working papers and similar documents.
- Helps to develop national level, domain-specific services.
- Preservation of information repository content for continuous 24X7 hours access
- Integration of institutional repositories with other institutional e-resources and e-services
- It also helps in E-learning process, learning objects including instructional materials in multimedia file format can be loaded in the institutional digital achieve.

Digital Preservation: Institutional Approaches

Digital preservation begins with capturing and storing digital files; to ensure its' access in future. Dynamic nature of digital content, machine dependency, fragility of the media, technological obsolescence, proper technical infrastructure shorter life span of digital media, risks to data over time are the major challenges faced by the organizations.

A critical first step is to consider the technical factors involved in managing these risks. Preservation also requires developing business models for sustainable repository services; addressing Copyright and Intellectual Property Rights (IPR) constraints that hamper archiving; creating standards for metadata; and training creators, curators, and users in appropriate technologies, among other things. Each community of creators and users of digital information has a stake in keeping digital files accessible.

Libraries, publishers, and academic associations are seriously combating with the challenges of digital preservation. Looking at the range of institutions and individuals engaged in digital preservation, it can be divided in two groups:

- Models developed by institutions or enterprises that address their *own preservation needs;*
- Models developed by *enterprises* whose communities of *participants' cross-institutional boundaries.*

These can be categorized into Enterprise-Based Preservation Services, Government-Sponsored Preservation, Passionate Individual attempt.

1. Enterprise-Based Preservation Services

Research universities, publishers, academic disciplines, and government agencies, objectively preserve digital materials to protect institutional or proprietary information assets for future use or, in the case of the government bodies, to comply with legal requirements. Preservation is central to the core values of each enterprise.

1.1. Research Libraries

As producers of primary research, it is to be expected that academic institutions would take an interest in capturing and preserving the intellectual output of their faculty, students, and staff. Traditionally, scholarly publishers (as aggregators and distributors) and institutional libraries (as managers and preservers) served complementary roles in facilitating scholarly communication and preserving.

A. International repositories

- **University of California Libraries (www.cdlib.org and lib.berkeley.edu)**

The University of California (UC) Libraries are developing a digital preservation program under the aegis of the California Digital Library (CDL) that will serve the entire system of libraries and be distributed across all nine campuses.

The university library system is active in areas that target specific user needs. Through its E-Scholarship program, it has begun taking in data created by the faculty to manage over time.

- **DSpace at the Massachusetts Institute of Technology (MIT) (http://dspace.mit.edu/)**

DSpace@MIT, MIT's institutional repository built to save, share, and search MIT's digital research materials including an increasing number of conference papers, images, peer-reviewed scholarly articles, preprints, technical reports, theses, working papers.

- **Harvard University Libraries (hul.Harvard.edu/ldi).**

  The Library Digital Initiative, established in 1998, has enabled Harvard libraries to maintain and grow collections and services in the digital era. At Harvard, individual curators and libraries are responsible for selecting the material to be preserved. (The university has more than 100 libraries among its schools.) By 2007, LDI activities were sufficiently integrated into the work of the Office for Information Systems (OIS), so that the main content of the web site was transferred to the OIS web site at http://hul.harvard.edu/ois.

- **LOCKSS (Lots of Copies Keep Stuff Safe)** Another digital preservation endeavor being developed is LOCKSS (Lots of Copies Keep Stuff Safe), a system based on the tried-and-true analog preservation strategy of redundancy. LOCKSS ensures that many digital systems in different locations across the continent and abroad retain caches of identical digital content. Now in beta test, LOCKSS enables institutions to create low-cost, persistent digital caches of authoritative versions of http-delivered content. With specially created software, institutions locally collect, store, preserve, and archive authorized content, thus safeguarding their communities' access to that content while doing no harm to publishers' business models. Although LOCKSS is now restricted to electronic journals, application to other genres is being explored. The software is distributed as open source.

B. Indian Institutional Repositories

The Indian information professionals with the help of open source software such as Greenstone, DSpace and EPrints establishing institutional repository (IR) in a local libraries.

Some institutional repositories in India are specially established to diffuse intellectual outputs of the country in the form of electronic theses. Vidyanidhi and ETD@IISc are examples of such kind. Other institutional repositories provide all kind of scholarly materials such as research papers, conference papers, presentations, photographs, along with e-theses. The OpenMED and Librarians' Digital Library are examples of such kind.

List of IRs in India

Sl	Host Organisation	Web Address No. of	University Records
1	ADE (DRDO) Bangalore	Hosted on Intranet	267 approx
2	ARDE, DRDO	Hosted on Intranet	40718
3	Bangalore Management Academy	http //bma.ac.in 8080/DSpace/	823
4	Bethesda CAM Research Center, Tamilnadu	Tirunelveli, http://www siddhapapers org/	25 approx
5	Bharathidasan University Library	Trichy http://172 16.1.10.8084/DSpace	NA
6	Bioinformation	http //www.bioinformation net/	320 approx.
7	Central Drug Research Institute	http://dkr.cdri res in:8080/DSpace	135
8	Central Institute of Medicinal & Aromatic Plants, Lucknow	http //kr.cimap.res in/index jsp	121
9	Cochin University	http //dyuthi.cusat ac.in/DSpace/	1912
10	CVRDE (DRDO) Chennai	Hosted on Intranet	217 approx.
11	Delhi College of Engineering Repository	http://202.141.12.109/DSpace	326
12	Delhi University	http://EPrints.du ac.in/	178
13	DESIDOC, Gyansrota- The DRDO Institutional Repository	http://ir drdo gov in.8080/dspace/	1766
14	DFRL, (DRDO) Mysore	Hosted on Intranet	13786
15	DIAT, DRDO	Hosted on Intranet	280
16	DRTC, Bangalore	http.//drtc.isibang.ac in/	567
17	GB Pant University of Agriculture & Science, Pantnagar	http //202.141.116 205/DSpace/	82
18	GTRE (DRDO) Bangalore	Hosted on Intranet	189 approx
19	Guru Gobind Singh Indraprastha University, Delhi	http://DSpace.ipu.ernet in 8080/dpace	NA
20	ICFAI Business School (IBS), Hyderabad	http //202.131 96 59.8080/DSpace	213
21	IGNOU, New Delhi	http //www.egyankosh.ac in/	18568
22	IIT Delhi	http.//eprint.iitd.ac.in/DSpace/	2143
23	IIT Kanpur	http //cse.iitk.ac in/cgi-bin/library	797
24	IIT Mumbai	http://dspace.library iitb ac.in/jspui/	1525
25	Indian Institute of Management Kozhikode (IIMK)	http://EPrints.iimk.ac.in/	571
26	Indian Institute of Science, Bangalore (Electronic Theses and Dissertations)	http.//etd.ncsi.iisc.ernet in/	483
27	Indian Institute of Science, Bangalore, India	http://EPrints iisc.ernet in/	15391
28	Indian Institute of Astrophysics, Bangalore	http.//prints.iiap.res.in/	4544
29	Indian Institute of Information Technology, Allahabad	http.//EPrints iiita ac in/	22
30	Indian Institute of Management, Kozhikode	http //DSpace.iimk ac.in/	488
31	Indian National Science Academy, New Delhi	http //61.16.154.195/dsapce/	818
32	32. Indian Statistical Institute (ISI), Library, Bangalore	http://library.isibang.ac in:8080/DSpace	191
33	33. Indira Gandhi Institute of Development Research, Mumbai	http://oii.igidr.ac in:8888/DSpace	193
34	INFLIBNET, Ahmedabad	http://DSpace inflibnet.ac in/	505
35	Institute of Mathematical Sciences, Chennai	http //www.imsc.res.in/EPrints/	38
36	Institute of Minerals and Materials Technology, Bhubaneswar	http://EPrints.immt.res in/	13
37	Institutional repository at MDI, Management Development Institute,	http://DSpace mdi ac in/DSpace	335

	Gurgaon		
38	International Crops Research Institute for the Semi Arid Tropics (ICRISAT), Patancheru	http //openaccess.icrisat.org/	2000 approx
39	JIIT, Noida	http //172 16 72.88/DSpace/	516
40	LRDE (DRDO) Bangalore	Hosted on Intranet	1943
41	Madurai Kamraj University	http·//EPrints.bicmku.ac.in/	71
42	Mahatma Gandhi University, Kottayam, Kerala	http.//www.mgutheses.org/	913
43	MedknowEPrints, Mumbai	http //EPrints medknow.com/	39187
44	MTRDC (DRDO) Bangalore	Hosted on Intranet	106 approx
45	National Aerospace Laboratory, Bangalore	http.//nal-ir.nal.res.in/	3022
46	National Center for Antarctic Research , Goa , India	http //DSpace ncaor.org.8080/DSpace	532
47	National Centre for Catalysis Research, IIT, Chennai	http://www EPrints iitm ac in/ http://203 199 213.48/	1315
48	National Centre for Radio Astrophysics, Goa (NCRA)	http //ncralib1 ncra.tifr.res in 8080/jspui/ handle/2301/1	370
49	National Chemical Laboratory, Pune	http·//DSpace.ncl.res.in/DSpace	357
50	National Institute of Immunology (NII),New Delhi	http //EPrints nii res.in/	10
51	National Institute of Oceanography, India	http·//drs nio org/drs/index.jsp	3340
52	5National Institute of Technology, Rourkela,	http://DSpace nitrkl.ac.in/DSpace	India 869
53	NIC, New Delhi	http://openmed.nic.in/	2458
54	NISCAIR Online Periodicals Repository (NOPR), New Delhi	http://nopr niscair.res.in/	4244
55	NIT, Rourkela 483	http·//ethesis.nitrkl.ac.in	
56	NPOL (DRDO) Kochi	Hosted on Intranet	2000 apprx
57	OneWorld South Asia (OWSA), New Delhi	http·//open.ekduniya.net/	116
58	Pandit Deendayal Petroleum University, Gandhinagar	http //203 77.192.116·8080/DSpace	01
59	R&DE (E) (DRDO) Pune.	Hosted on Intranet	100 approx
60	Rajiv Gandhi Center For Biotechnology, Trivandrum	http.//www.rgcb.res.in	NA
61	Raman Research Institute Digital Repository, Bangalore	http://DSpace rri res.in/	3786
62	Sardar Vallabh bhai National Institute ofTechnology, Surat	http://EPrints.svnit ac.in	14
63	SASE (DRDO) Manali	Hosted on Intranet	- 600 approx.
64	Sri Venkateswara University, Tripathi	http://202 141.117 109:8080/DSpace	1086
65	Thapar University, Patiala	http://DSpace.thapar.edu.8080/DSpace/	382
66	University of Hyderabad	http.//didib.uohyd.ernet.in/DSpace http //DSpace.vidyanidhi org in 8080/DSpace/ handle/2009/139	396
67	University of Kashmir, Allama Iqbal Library Digital Collection	http://www kashmiruniversity.net/library.exe http·//203 129 216 166/gsdl/cgibin/	450
68	University of Mysore	http //DSpace.vidyanidhi org in·8080/DSpace/	54778

1.2. Publishers

Publishers represent another group that is planning for the preservation of digital content. Some publishers that market to the academic community, such as Elsevier, Oxford University Press, the American Physical Society (APS), and the American Geophysical Union (AGU), have committed to deliver digital access services to their core journals.

The open access aspect of institutional repositories threatens the existing subscription based business models of many scholarly publishers.

- **EBSCO Publishing**

EBSCO Publishing is an aggregator of premium full-text content. EBSCO Publishing's core business is providing online databases via **EBSCOhost** to libraries worldwide. EBSCOhost is used by libraries, schools, academic institutions, medical institutions, and corporations.

EBSCO provides a *range of library services* including the popular **EBSCOhost databases**. Many of the databases, such as Medline and EconLit, are licensed from content vendors. Others, such as Academic Search, MasterFILE, and Environment Complete, are content licensed directly from publishers and compiled by EBSCO.

EBSCO*host* databases and discovery technologies are the most-used, premium online information resources for tens of thousands of institutions worldwide, representing millions of end-users.

- **JSTOR (www.jstor.org)**

JSTOR is a nonprofit company that provides access to digitized versions of major journals in several topic areas. It is licensed by nearly 1,300 colleges and universities, two-thirds of which are in the United States. In some disciplines (particularly the social sciences), JSTOR has become a core resource that is heavily used by scholars and students.

- **LexisNexis**

LexisNexis has built an enormous collection of digital materials, mainly in law, business, and contemporary affairs. It is largely oriented toward use by law firms and businesses and derives most of its income from those markets, although it is also heavily used by universities. Essentially all the materials used for the study of contemporary American law are available from LexisNexis, and it is the single most widely used digital resource provided by academic libraries.

2. Government-Sponsored Preservation

Government and state agencies have a legal mandate to maintain records and make them accessible to the public. Now most of the government agencies are conducting their business electronically.

Government and private philanthropic foundation funding for academic research, especially in the sciences have a vested interest in broadening the dissemination of scientific research.

The major collecting agencies of the federal government the National Library of Medicine (NLM), and the National Agricultural Library (NAL) have programs in place to research and develop electronic records creation and preservation. Their research and development agendas are crucially important to all citizens and should also be of benefit to the academic community.

Library of Congress (LC), maintain collecting policies that include a large amount of the heterogeneous digital content under consideration here. (NLM and NAL collect technical and clinical materials that differ significantly from the special collections found LC.)

The Library of Congress, which receives mandatory deposits of copyrighted works through its Copyright Office, has begun to collect contemporary works in digital formats, including Web sites and materials captured from the Web. More important, through a congressional mandate enacted in 2000, the **National Digital Information Infrastructure and Preservation Program (NDIIPP),** LC received an appropriation of up to $100 million to develop, design, and implement a preservation infrastructure that would create the technical, legal, organizational, and economic means to enable a variety of preservation stakeholders to work collaboratively to ensure the persistence of digital heritage (Library of Congress 2003).

Distributed architecture starts from the premise that the core functions of libraries and archives, from acquisition to user services, should be disaggregated in a networked environment.

These repositories would differ from archival repositories because their primary purpose is to facilitate access and dissemination, not just preservation.

3. Community-Based Preservation Services

Most digital resources that scholars create today have no guarantee of surviving long enough to be acquired for long-term preservation and access by libraries, archives, or historical societies.

There are now no digital preservation service bureaus that can offer the full range of services needed by such libraries and archives (or creators, for that matter).

▪ OCLC/ RLG

Nonprofit membership organizations that have served libraries for decades, most notably the Online Computer Library Center (OCLC) and the Research Libraries Group (RLG), are developing a variety of preservation services for their members while also engaging in research on metadata standards and other topics that benefit the larger library community.

The Center for Research Libraries, which has been a central repository for collecting, preserving, and providing access to important but little-used research collections, is also contemplating offering similar services to members for certain classes of digital materials.

4. Passionate Individual

Many great collections, particularly those of rare and ephemeral materials, have been the creation of individuals with a passionate interest in an area. To some degree, such collecting has continued in the digital era. Current archives, both of which are freely available to the public, include the following:

- **The Internet Archive (www.archive.org):** This archive was conceived and built by Brewster Kahle, a computer scientist. It gathers and stores Web pages, mainly through cyclical "crawls" of the entire Internet. Since 1996, the Internet Archive has been storing crawls of the Web. It now contains about 250 terabytes, and is the largest publicly available collection on the Web.

  The Internet Archive Wayback Machine is a service that allows people to visit archived versions of Web sites. Visitors to the Wayback Machine can type in a URL, select a date range, and then begin surfing on an archived version of the Web.

- **The David Rumsey Historical Map Collection**: This is a collection of eighteenth-, nineteenth-, and twentieth-century North and South American cartographic materials digitized from the collection of businessman David Rumsey. It includes about 6,500 items from Rumsey's collection of 150,000. Rumsey collaborated with a specialized software firm to expand the ability of its software to handle cartographic materials.

Conclusion

Digital media is very sophisticated one and should be handled with care. We can never know for a certain when a system has become obsolete. As it's a very costly affair archives must be prepared to migrate valuable digitized data, indexes, and software from one generation of computer technology to a subsequent generation. The use of digital technologies from a preservation perspective requires a deep and long standing institutional commitment to long term access, the full integration of the technology into information management procedures and processes, and significant leadership in developing standards for digital preservation. So appropriate initiative, fulfillment and its maintenance is a vital role to be performed by an organisation.

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[Tutorial Article]

Role of Different Interpersonal and Communication Media in the Health Sector

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Abstract

High quality information products and services are essential components of public health program. Evidence based policies and guidelines and innovative approaches to the various health services can be provided to the intended audience in the health sector. Thus health communication plays an important role in the context of disease prevention and health promotion. This paper will try to examine the main application of health communication strategy, which can solve the various health problems globally. In spite of these various communication channels, the main problem is to access the health information in the developing countries. Significant progress has been made over the past few decades in providing health information, but this progress has been uneven. In this context, the role of librarian is evaluated. They must select, organize, and store information as well as provide a range of health information services. In this study an attempt has been made to review the status of different Communication Media to assess and address the situation with recommendations.

Introduction

High quality information products and services are essential components of public health program. Timely produced, accurate, precise and up-to-date health information is vital to the healthcare practitioners and policy makers. They can apply this knowledge to improve the public health. In this environment, evidence based policies and guidelines and innovative approaches to the various health services can be provided to the intended audience in the health sector. Thus health communication plays an important role in the context of disease prevention and health promotion.

Health communication encompasses the study and the use of communication strategies to inform and influence the individual and community decision making that enhance health sectors. Effective health communication occurs in a variety of context through a variety of channels.

Health communication is relevant in a number of context including

1. Health professional – patient relation.
2. Individuals' exposure to, search for and use of health information.
3. Individuals' adherence to clinical recommendation and regimens.

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[1] Librarian

4. The construction of public health message and campaigns.
5. The dissemination of individuals and population health risk information.
6. The education of consumers about how to gain access to the public health and healthcare system.

This paper will try to examine the main application of health communication strategy, which can solve the various health problems globally. It is a multidisciplinary approach and concern with health education, community development, psychology, communication as well as social marketing.

The process involves the planning, implementation and monitoring of programs to persuade the acceptance of social ideas. The basic elements of the process lie on 4 Ps i.e. product, price, place and promotion.

The concept of health products are the forum for exchange of ideas. It may be an object, idea or behavioural change in a favourable way. The price concept is comparable to that of the commercial sector, but it is conceived in a social cost terms, such as missed opportunity, deviation from the established culture norms etc. 'Place' refers to the channel through which the ideas or the products will be transmitted. 'Promotion' refers to the use of mediated or interpersonal communication to make the health products known among the target group.

Use of health information

It is a process that not only informs, but also motivates and helps people to adopt and maintain health practices and lifestyle.

Health information provides:

1. Growing awareness among the general people about various infections and communication diseases.
2. Improvement of the knowledge base of both the health information provider and information seeker.
3. Mobilize all the sectors of the society to integrate message and programs on the various health policies.
4. Training the health workers.
5. Selection of strategies for strengthening technical and managerial capabilities.
6. Creation of a supportive environment for the healthcare and rehabilitation of the persons.

So, effective health communication can help raise awareness of the health risks and their solutions provide motivation and skill needed to reduce the risks. These also help people to find support from other people in similar situation. Thus well designed health communication activities help individuals better understand their own and their community's need.

Designing methods for effective health communication channels

There are different channels of communication to inform and influence individuals and community decisions. Here the word 'channel' may be defined as an adoption of various ways and means through which message can be transmitted by the sender to the recipient. People receive health information from a variety of sources, the most frequent of which are verbal and written message and these are more effective than others.

1. Verbal Communication

Research indicates low health literate patients often have difficulty in understanding complex medical or technical terminology. So it is necessary to use clinical words in practice by the medical practitioner, but should make an effort to use plain language to explain the word and avoid technical jargons.

One of the most effective methods to improve information retention and understanding is the 'teach-back' technique. Providers using the teach-back method ask their patients to repeat information they just heard in their own words. This technique gives the provider an opportunity to correct any misunderstanding and reiterate critical information that was forgotten.

The method mentioned above focus on improving communication with patients. However, there are also initiatives that encourage consumers to take a more active role in learning about their health problem. For example- 'Ask Me' type campaign (used for clear health communication). This type of campaign helps the consumer information seekers to understand their main health problem and what they can do about it.

Another relatively new communication strategy is the group medical visit. Group medical visits were developed to respond to a number of growing concerns, including time constraints of managed care, the increasing number of individuals with chronic diseases (e.g.- cancer, hypertension), and the need to include family members in disease management.

Group medical visits also may be helpful to low literacy populations. It allows providers to communicate with greater number of patients with similar health concerns at one time and in a more comprehensive way.

In a group setting, patients may get answers to questions they did not think of themselves or were too embarrassed to ask. It also encourages the patient to engage in the active health care policy and clinical activity. This study suggests group medical visits may be a promising practice for serving low literacy patients with complex health concerns.

Communication of health information also can be improved through the use of community health workers or trained health educators. Community health workers are able to reach underserved population, so that health information should be meaningful and relevant across the population.

2. Written Communication

Written communication means the communication in a written form. Documents that effectively communicate information must first and foremost be comprehensible to the population they are meant to reach. Therefore they must be written at an appropriate reading level. But it is important to use plain language in written documents. Plain language means using common words and the active voice. It is written like a conversation and has short sentences.

Documents also should use clear and descriptive headings and include pictures and diagrams that help illustrate or explain the written text. Studies have shown the use of pictures in health information improves consumer comprehension, recall and adherence. Pictures should be closely linked to the text or captions that explain them. Both health professionals and consumers should be involved in the design of materials. For example- health professionals should be involved in selecting pictures to ensure accuracy, where as consumers are needed to ensure materials are understandable.

3. Visual Communication

The environment for communicating about health has changed significantly. These changes include dramatic increases in the number of communication channels and the number of health issues vying for public attention as well as consumer demands for more and better quality health information. A visual aid is any visible device that assists an instructor to transmit to a learner's fact, skills, understanding. In this method, instruction is carried on through such devices as filmstrips, overhead projector, pictures, photographs, posters etc.

4. Communication through Internet

Internet is the strongest tool for the literate persons. The expansion of communication channels and health issues on the public agenda increases competition for people's time and attention; at the same time, people have more opportunities to select information based on their personal interests and preferences. The trend toward commercialization of the Internet suggests that marketing model of other mass media will be applied to emerging media, which has important consequences for the ability of non-commercial and public health oriented health communications to stand out in a cluttered health information environment.

5. Websites

Websites are the newest and most popular mediums for distributing health information to consumers. Overtime, more users have started to use the Internet to access health information. Searching for medical information is the most popular activity done on the Internet.

Websites offer several advantages over traditional written materials, e.g. - information on websites can be updated by the producer at any time.
Additionally, if the users do not find the information they are seeking from one website, they can access other websites to gather the information.
However, this dynamic nature of the information can vary dramatically across websites. Further more, there is no systematic program for evaluating websites.

6. Other media

Health information also can be shared using other media, such as videotapes, DVDs, audiotapes, CDs. These forms of communication are generally more easily communicable.

But the attractive medium for health communication is the outdoor publicity through campaigning, hoarding, posters, banners, display stall etc.

Thus we can conclude that, whatever be the medium of communication providing health information, it should consist of

1. **Clarity** - By systematically thinking, through the message, the information provider overcomes all the pitfalls of communication failure, so that message should clearly communicate.
2. **Explain the purpose of the document** - Here, consider the purpose and benefits from the patients' viewpoint, limit content to only what is necessary to know, plan the sequence of topics and review key points.
3. **Involve the reader** - Create interaction with the reader, emphasize desired patient actions and behaviors, spell out realistic action step, make it culturally/ age/ gender appropriate.
4. **Make the document easy to read** - Use active voice and common words, provide examples for difficult words and concepts, put context first, break up complex topics, present each topic in an uninterrupted layout, do not use vertical text, avoid long and complex sentences.
5. **Make the document look easy to read** - Avoid reverse type/ all caps/ italics, use sharp contrast and large font type, include a lot of white space and no dense text, use cueing to direct attention to key points.
6. **Select visual that clarity the document** - Select realistic visuals, omit distracting details, use graphics that contributes to the message, use action captions and explain lists and charts with examples.
7. **Follow up on communication** - If the above mentioned suggestions are followed clearly, then a well planned health information package will stem up which will benefit the community very much.

Problems to access the health care information

In spite of these various communication channels, the main problem is to access the health information in the developing countries. Significant progress has been made over the past few decades in providing health information, but this progress has been uneven. Women in particular have not been had an equal share. Women's inadequate access to health care is also reflected in mortality statistics.

Socio- economic constraints-

- Lack of money to cover the costs of transportation and treatment
- Lack of availability of equipment and supplies at the site

Socio-cultural or informal constraints-

- Lack of awareness of health issues
- Lack of self-esteem and sense of control

Suggestion to improve access to health care information

Sound health information development should draw upon various strategies

1. Public relations to support various attitudes (e.g. anti tobacco attitude, anti alcohol attitude).
2. Entertainment education and advocacy to decrease the depiction of the tobacco use in movies.
3. Media literacy instruction through print and electronic media (e.g. cancer awareness, AIDS awareness).
4. Paid advertising (e.g. bird flu, swine flu).
5. Media advocacy to support regulatory or policy changes to limit access to tobacco.
6. General Education and leadership training could do much to learn about health needs, preventive behaviors and therapeutic choice.
7. Education also improves access to care by increasing access to information and increasing the ability to adopt new health concept and practices.
8. Improving communication and transport system for effective operations of referral system, including effective interaction of many levels of the health system.
9. Ensuring adequate communication and healthy relation between levels of health personnel.
10. Ensuring that the service quality and efficiency improvements go hand in hand with cost sharing programs to minimize drops in utilization.

Role of Librarian in this context

Librarians must evaluate, select, organize, and store information as well as provide a range of health information services on a limited budget.

For minority groups, access to high quality health information is of particular importance. According to a recent report from the Institute of Medicine entitled Unequal Treatment – Confronting Racial and Ethnic Disparities in Health Care, "A large body of published research reveals that racial and ethnic minorities experience a lower quality of health services, and are less likely to receive even routine medical procedures than White Americans even when variations in factors such as insurance status, income, age, co-morbid conditions and symptom expression are taken into account." The report states that these differences are associated with greater mortality among African American patients. Yet many members of minority groups are unaware of the health information resources that their local libraries provide.

The quality of health information on the Internet varies, and must be evaluated to ensure that it is current, reliable, and unbiased. The Internet and its wealth of health information is a particularly valuable tool for helping minorities learn more about common, chronic illnesses and wellness programs. Internet usage among minority consumers is growing and they need to evaluate the information they find. Librarians can help them to do this, though the annual Internet usage growth rate is very low. To help librarians do a better job of providing health information services to minorities, library Initiative is designed to provide minorities and other consumers who seek health information with the latest medical information in accessible and easily understandable formats. The text of the plain language booklets will be made available on the Web site so that librarians can download and print topics as needed. A tool kit for librarians will contain resources such as posters, bookmarks, tabletop displays and other materials to help promote the booklets to the user.

Conclusion

In this enormous growth and flow of health science information, intermediary of this scientific knowledge the so called Librarian find it difficult to cope up with the situation of different formats of documents based on different platforms. The nature of health information required at various stages of decision making on patient care viz., preventive measures, preliminary tests, diagnosis, treatment, research, evidences, complications, follow up procedures and so on differs considerably. At every stage clinicians need comprehensive and current information with strong evidences in connection to a patient whose status is unique. In this study an attempt has been made to review the status of different Communication Media to assess and address the situation with recommendations. Thus it can be concluded that health communication and awareness are the crucial cornerstones of the modern society. The adoptions of various types of communication channels in providing proper health communication are the need of the day.

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[Tutorial Article]

Machine Translation in India: An overview

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Abstract: The main objective of Machine Translation (MT) is to break the language barrier in a multilingual nation like India. Majority of the Indian population is not familiar with English while most of the information available on web or electronic information is in English. So, to reach out to the common man across various sections, an automatic language translator is important. Machine Translation in India is relatively young. The earliest efforts date from the late 80s and early 90s. Prominent among these are the projects at IIT Kanpur, University of Hyderabad, NCST Mumbai and CDAC Pune. The Technology Development in Indian Languages (TDIL), an initiative of the Department of IT, Ministry of Communications and Information Technology, Government of India, has played an instrumental role by funding these projects. A brief survey of Machine Translation projects in India is provided in this paper.

Keywords: Computational Linguistics, Artificial Intelligence, Machine Translation, Translation

Introduction

Today technology has made it possible for individuals worldwide to access large volumes of information at the click of a button. However, very often the information sought may not be in a language that the individual is familiar with. Machine Translation is an endeavor to minimize the language barrier, by making it possible to access a text in the language of one's choice. Nowadays, importance of machine translation is growing as we are living in an age of information explosion. It is beyond the capacity of any organization employing humans to translate this volume of information and make it available for uses of common man. Keeping this in view, many machine translation projects and related activities are going on in the country. Hence, it is essential to find out the current state of technology in India. In this paper, based on literature survey, a brief attempt has been made to find out different machine translation projects going on in the country and how far these projects have been successfully implemented.

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Translation

By translation we mean a written work expressed in a language other than the language in which it was originally composed. The purpose of a translation is to make a document accessible to those who have insufficient knowledge of a language to be able to comprehend the text in its original form.

The most common method of translation is that of human translation done by someone with a good knowledge of both source and target languages as well as the subject. Since the 1960s it has been possible, to a varying extent, to employ computers to generate translations. This is known as Machine Translation. A machine translation is a translation generated by a computer, with or without the assistance of a human. Machine translation provides translations of entire sentences or texts but can offer translations that are unacceptable. For this reason, human assistance may be necessary. This may be given in the form of pre-, interactive or post-editing.

What is machine translation?

Machine translation, sometimes referred to by the abbreviation MT, is a sub-field of computational linguistics that investigates the use of computer software to translate text or speech from one natural language to another. Machine translation is also called "automatic translation" or simply translation software. Machine translation software is used for translating a document or text from one natural language (L1) to another natural language (L2) (Where L1 is source language and L2 is target language) by considering the grammatical structure, nature of each language and using rules to transfer the grammatical structure of the source language (L1) into the target language (L2).While doing the translation, care should be taken that the meaning of a text in the original (source) language must be fully restored in the target language, i.e. the translation. Machine translation cannot replace a human translator for demanding applications such as legal or literary work. Many companies that represent themselves as MT providers are actually selling "word by word" translation.

Why Machine Translation?

Machine Translation is an important technology for localization, and is particularly relevant in a linguistically diverse country like India. India is a multilingual country, with 22 official languages and 12 scripts. The 22 official languages are Assamese, Bengali, Bodo, Dogri, Gujarati, Hindi, Kannada, Kashmiri, Konkani, Maithili, Manipuri, Malayalam, Marathi, Nepali, Oriya, Punjabi, Sanskrit, Santhali, Sindhi, Tamil, Telegu and Urdu. Hindi is the official language of the Union. English is very widely used in the media, commerce, science and technology and education. Many of the states have their own regional language, which is either Hindi or one of the other constitutional languages. Most of the state governments work in the respective regional languages where as the Union Government's official documents and reports are in bilingual (Hindi/English). In order to have a proper communication there is a need to translate these reports and documents in the respective regional languages. With the limitations of human translators, most of this information (reports/documents) is missing and not percolating down. A machine assisted translation system or a translators' workstation would increase the efficiency of the human translators. The induction of machine translation softwares completely revolutionized the existing translation procedure. It improved the quality of translation and results in standardization of translation, changing the role of translators to post translation editors. Translation is being standardized and carried out with minimum effort and maximum speed.

A brief survey of Machine Translation projects in India is provided.

TDIL

Technology Development for Indian Languages (TDIL) Programme initiated by the Department of Information Technology (DIT), Ministry of Communication & Information Technology (MC&IT), Govt. of India has the objective to develop information processing tools to facilitate human machine interaction in Indian languages and to develop technologies to access multilingual knowledge resources. Initiatives have been taken for long term research for development of Machine Translation System, Optical Character Recognition, On-line Handwriting Recognition System, Cross-lingual Information Access and Speech Processing in Indian languages. Under the aegis of Department of Information Technology (DIT), Govt. of India, C-DAC GIST Pune has completed major initiative called National Rollout Plan. Under this program software tools and fonts for 22 scheduled languages are being made available free for public through language CDs and web downloads for the benefit of masses.

Research Areas

Technology Development for Indian Languages (TDIL) Programme works on following research areas:

§§ **Development of corpora of texts in machine readable form** – In this, authentic data on contemporary use of Indian languages will be provided to both computer scientists and linguists for their academic, research and the developmental activities.

§§ **Machine Translation System** – In this, one natural language gets translated to another language using computational applications without real time human interface or with minimal human effort. The various softwares developed under the Machine Translation project are as follows:-
-Development of English to Indian Languages Machine Translation (MT) System
-Development of English to Indian Languages Machine Translation (MT) System with AnglaBharti Technology
-Development of Indian Language to Indian Language Machine Translation System

§§ **Development of Cross-lingual Information Access** - Cross Lingual Information Access (CLIA) system makes it possible for users to directly access sources of information which may be available in languages other than the language of query.

§§ **Development of Robust Document Analysis & Recognition System for Indian Languages (OCR)**- Optical Character Recognition (OCR) is a utility tool for digitizing the content and is essential for development of knowledge networks such as digital libraries. OCR technology offers the facility to scan and store the printed text. There are three basic elements of OCR technology - scanning, recognition and then reading text.

§§ **Development of On-line handwriting recognition system (OHWR)** - On-line handwriting recognition system (OHWR) is a useful tool that converts the written strokes of an individual into editable text thus bypassing the need for a keyboard for text entry.

ILDC

The software tools aggregated through National Rollout Plan are made available through Indian Language Data Centre (ILDC). This activity is being executed in close coordination with CDAC GIST, Pune. Under this user friendly software tools and fonts are being made available free for public through language CDs and web downloads for the benefit of masses. The availability of these software tools, fonts and resources in local languages at no cost is intended to motivate general public to use ICT tools and technology in their day to day work like Word Processing, Presentation preparation, Spread Sheets preparation, Web Page Surfing & Designing, Messaging etc. in local languages. Further, the consolidated availability of linguistic resources and tools at one place will help researchers to carry out their research in a smooth and efficient manner.

Projects under TDIL Programme 1990-1999

Sl.No.	Name of the Project	Implementing agency	Month & Year of Initiation	Duration in Years
1.	Development of Corpora of Text of Indian Languages in machine readable Form - Part I(English, Hindi, Punjabi)	IIT Delhi	Apr. '91	4
2.	Development of Corpora of Text of Indian Languages in machine readable forms	Central Institute of Indian Languages, Mysore	Apr. '91	4
3.	Development of Corpora of Text of Indian Languages in Machine Readable forms - Part III(Marathi, Gujarati)	WRLC Deccan College , Pune	Apr. '91	4
4.	Development of Corpora of Text of Indian Languages in machine readable forms - Part IV (Oriya , Bengali , Assamese)	Indian institute of Applied Language Science, Bhubaneswar.	Apr. '91	4
5.	Development of Corpora of Text of Indian Languages in machine readable form - Part V(Sanskrit)	Sampurnanand Sanskrit university Varanasi	Apr. '91	4
6.	Development of Corpora of Text of Indian Languages in Machine readable form -Part VI (Urdu , Sindhi, Kashmiri)	Aligarh Muslim University, Aligarh	Apr. '92	4
7.	Machine Aids for Translation from English to Hindi & other Indian Languages, Phase II.	IIT Kanpur	Apr. '92	4
8	Computational Rendering of Paninian Grammar and development of DESIKA	CDAC Bangalore	Apr 1994	4
9.	Corpora Maintenance and Distribution	CIIL Mysore	Aug.1995	5
10.	Machine Aide Translation of Standard Documents Based on Aglabharati Approach	IIT Kanpur & ERDC (Noida)	July 1995	2 yrs. 8 months
11.	Machine Aided Translation of English news Stories to Hindi	NCST Bombay	June 1995	3
12.	Integrated Project on Machine Translation (Anusaaraka)	UOH IITK cell at Hyderabad	Sep. 1995	3
13.	Semantic analysis of Sanskrit Sentences	ASR Melkote	June 1995	3
14.	OCR for printed Devnagari Text	C-DAC Pune	Sep. 1995	2
15.	Spell Checker for Punjabi	ER&DC Mohali	Dec. 1995	2 yrs. 4 months
16.	Lexical Resources for Indian Languages (Hindi, Marathi, Tamil, Oriya, and Telugu)	CIIL Mysore	Nov. 1995	3
17.	Speech Synthesis for Hindi language	CEERI Delhi	Feb. 1996	2
18.	Development of Corpora texts in Machine Readable form (Konkani)	Asmithai Pratisthan	Dec. 1995	3
19.	Development of Corpora texts in	Univ. of Manipur	Aug 1997	3

	Machine Readable form (Manipuri)	Imphal		
20.	Tools and Technologies for Indian Languages (Hindi) on Internet	IIT, Kanpur &C-DAC, Pune	Nov 1997	2
21.	Development of Spell-Checker and Morphological Analyser in an Indian Language (Bengali) with speech output for the blind	Indian Statistical Institute, Calcutta	Feb. 1998	2
22.	Development of Corpora of Texts of Nepali Language in machine readable form	CCCT, Gangtok	Feb. 1998	3
23.	Development of Sanskrit Authoring Syst.	C-DAC, Bangalore	Feb 1998	2
24.	Development of a Pocket Translator for Indian Languages	C-DAC, Pune	Mar. 1998	1
25.	Development of courseware in Hindi for DOEACC 'O' Level	Banasthali Vidya Pith	Aug. 1998	1

ENGLISH TO INDIAN LANGUAGES: MACHINE TRANSLATION SYSTEM (E-ILMT)

The EILMT system aims to design and deploy a Machine Translation System from English to Indian Languages in Tourism and Healthcare Domains. The project is funded by Department of Information Technology, MCIT, Government of India. The project started from September 2006 onwards.

Consortium Members of EILMT system:

× C-DAC Pune
× C-DAC Mumbai
× IISc Bangalore
× IIT Hyderabad
× IIT Mumbai
× IIIT Allahabad
× Jadavpur University Kolkata
× Utkal University, Orissa
× Amrita University Coimbatore
× Banasthali Vidyapeeth, Banasthali

C-DAC Mumbai is building up statistical models and resources for a statistical MT (SMT) system from English to Hindi/Marathi/Bengali. Statistical Machine Translation is a Mathematical Model in which the process of human translation is statistically modelled. Statistical methods allow the analysis of parallel text corpora and the automatic construction of machine translation systems. The engine uses state of the art statistical techniques which are presently gaining momentum in the MT community. The primary objective is to initially build an English-Hindi translation system capable of translation of free flow text as found on the web and gradually adapt it to other Indian language pairs as well. Various enhancements have been induced in the baseline system leading to an improved translation engine despite lack of linguistic resources and sophisticated tools for Indian languages.

Overall Strategy

- Collecting and Developing Monolingual & Bilingual corpora
- Building language models for Hindi/Marathi/Bengali
- Building Translation modules for English-Hindi/English-Marathi/English-Bengali
- Tuning
- Evaluation

Resource Centre for Indian Language Technology Solutions – *Bangla*

Resource Centre for Indian Language Technology Solutions – *Bangla* is a project funded by the Ministry of Information Technology, Govt. of India. It is carried out by Computer Vision and Pattern Recognition Unit, Indian Statistical Institute, Kolkata, under the leadership of Prof. B.B.Chaudhuri. The aim is to establish a Resource Centre for Eastern Indian Languages, particularly in case of Bangla. Activities of this Resource Centre are-

A. Corpus development: Development of Electronic Corpus of Document Images, Bangla Text Corpus in Electronic Form (including a Bangla dictionary, and several Bangla classics) and Electronic Corpus of Speech Data

B. System development: OCR System Development for Oriya, adaptation of existing Bangla OCR to Assamese, Information Retrieval System for Bangla Electronic Documents and Script Identification and Separation From Indian Multi-Script Documents

C. Font generation: Public Domain Bangla Font Generation

D. R & D work: Automatic Processing of Hand-printed Table-Form Documents and Research and Development of Neural Network based tools for printed document (in eastern regional scripts) processing E. Web site development: Creation of a web site on Eastern Indian Languages and Language Technologies for information of people interested in TDIL programme F. Training Programmes: Education through Training Programmes and Workshops

The products of this Resource Centre are:

- Bangla Font
- Bangla Editor
- Bangla Spell Checker
- Bengali-English Dictionary
- Printed Bangla Document Images and ground truth
- Bangla Text Corpus in electronic form

ANGLABHARATI

IIT, Kanpur has initiated Anglabharti mission which aims at designing machine-aided translation systems that would facilitate translation of English to any other Indian language. IIT Kanpur has developed Anglabharti technology under the leadership of Prof. R.M.K. Sinha. AnglaBharti uses a pseudo interlingua named as PLIL (Pseudo Lingua for Indian Languages) as an intermediate language. The source English language is first translated into PLIL. A text generator transforms the PLIL into the desired target Indian language. As PLIL is valid for a group of Indian languages, a mere text generator is required to obtain translation in another Indian language. It is estimated that translation of English to PLIL takes 70% of the effort and only 30% of additional effort is needed to design specific text generator. Prof. Sinha also designed the fully operational English to Hindi machine aided translation system which has been named AnglaHindi using this technology. It has been applied mainly in the domain of public health.

IIT Kanpur in association with the Technology Development for Indian Language (TDIL) Programme of Govt. of India has now taken an initiative to make the AnglaBharti Technology available to all the thirteen Resource Centres in the country. These resource centres have been established across the country for development of Indian languages technology solutions in their regional languages.

List of Organizations participating in AnglaBharti Mission:

- IIT Mumbai working on Marathi & Konkani and developing AnglaMarathi & AnglaKonkani.

- IIT Guwahati working on Asamiya & Manipuri and developing AnglaAsamiya & AnglaManipuri.
- CDAC Kolkata working on Bangla and developing AnglaBangala.
- CDAC (GIST group) Pune working on Urdu, Sindhi & Kashmiri and AnglaUrdu, AnglaSindhi & AnglaKashmiri.
- CDAC Thiruananthpuram working on Malayalam and developing AnglaMalayalam.
- TIET Patiala working on Punjabi and developing AnglaPunjabi.
- JNU New Delhi working on Sanskrit and developing AnglaSanskrit.
- Utkal University Bhubaneswar working on Oriya and developing AnglaOriya.

AnglaMT: English to Bengali, Malayalam, Punjabi, Urdu machine translation systems have been web-enabled and are available at: http://tdil-dc.in/index.php?option=com_content&view=article&id=61&lang=en

The English to Hindi version named AnglaHindi, of Anglabharti machine aided translation system has been web-enabled and is available at http://anglahindi.iitk.ac.in/

ANUSAARAKA

Anusaaraka is an English-Hindi language accessing software. It is a machine translation tool being developed by the Chinmaya International Foundation (CIF), International Institute of Information Technology, Hyderabad (IIIT-H) and University of Hyderabad (Department of Sanskrit Studies). Translated Anusaaraka output appears in layers i.e. a sequence of steps that follow each other till the final translation is displayed to the user. The present version of Anusaaraka provides for translation from English to Hindi. With the aim to reduce language barriers the Anusaaraka software allows the user to enter an English text into Anusaaraka and get the translation of the same in an Indian language. This software is still under development.

ANUVADAKSH

(English to Indian Language Machine Translation System)
To overcome language barrier in India by using Machine assisted Translation, Department of Information Technology (DIT) came up with the mission of consortia for Machine Translation (MT) Systems. English to Indian Language Machine Translation (EILMT) consortium has been formed as a part of this

mission. Anuvadaksh is a collaborative effort of the consortium institutes which have brought forward the integration of four Machine Translation technologies:

- Tree-Adjoining-Grammar (TAG) based MT
- Statistical based MT (SMT)
- Analyze & Generate rules (AnalGen) bases MT
- Example Based MT (EBMT)

Anuvadaksh is a state-of the-art software that allows translating the text from English to six other Indian languages i.e. Hindi, Urdu, Oriya, Bangla, Marathi and Tamil. This system has been developed to facilitate the multi-lingual community, initially in the domain-specific expressions of Tourism, and subsequently various other domains in a phase-wise manner. Being a consortium based project, it is having a hybrid approach designed to work with the platform and technology independent modules.

MaTra

MaTra, a project by CDAC, Mumbai and funded by TDIL, is a Human-Assisted translation project for English to Indian languages, mainly Hindi, essentially based on a transfer approach using a frame-like structured representation. The system breaks an English sentence into chunks, analyzes the structure and displays the Hindi output. The system can work in a fully automatic mode and produce rough translations for end users, but is primarily meant for translators, editors and content providers. The MaTra lexicon and approach is general-purpose, but the system has been applied mainly in the domains of news, annual reports and technical phrases, and has been funded by TDIL.

MANTRA

MAchiNe assisted TRAnslation tool translates the English text into Hindi in a specified domain of Personal Administration, specifically Gazette Notifications, Office Orders, Office Memorandums and Circulars. The strategy adopted here is - NOT WORD-TO-WORD... NOT RULE TO RULE.... but a LEXICAL TREE-TO-LEXICAL TREE. MANTRA uses the Lexicalized Tree Adjoining Grammar (LTAG) formalism to represent the English as well as the Hindi grammar. The MANTRA Technology is being expanded to translate English texts into other Indian languages such as Gujarati, Bengali, and Telugu. The accuracy rate of translation in these languages is considerably high. Besides, it is also being expanded to translate Hindi text into English in the specified domain of personnel administration, as well as other domains like Banking, Transportation and Agriculture.

The salient features of MANTRA are:

§ Format Retention (Font sizes, alignment, styles)

§ Input to MANTRA can be through .rtf or .htm file created using standard DTP packages, Speech Recognition Program, Optical Character Recognition Package

§ Pre-processing Tools include Phrase Marker, Proper Noun, Dates and other domain specific identifiers and Spell and Grammar checker

§ Uses Tree Adjoining Grammar (TAG) for Parsing and Generation

§ User friendly selection tool for multiple outputs

§ On-line word addition and grammar creation, updation facility

MANTRA RAJBHASHA

Mantra Rajbhasha is a Machine assisted translation tool, which is based on the MANTRA Technology designed and developed by the Applied Artificial Intelligence Group (AAI), C-DAC, Pune and sponsored by the Department of Official Language, Ministry of Home Affairs, Government of India . It translates documents pertaining to Personal Administration such as gazette notification, office order, circular, office memorandum and Finance domains from English to Hindi and is being expanded to cover the other prominent domains of agriculture, information technology and education. MANTRA-Rajbhasha Standalone version, Mantra Rajbhasha Intranet Version and Mantra Rajbhasha Internet Version have been developed. Some notable features of Mantra Rajbhasha are Interactive Graphical User Interface, fast and standard translation, translation of tables, interactive preprocessing tools like spell checker and phrase marker, Document Management System enabled and personal account creation and inbox management.

ORINET (ORIYA WORDNET)

The OriNet system is designed on the basis of Object Oriented Principle, consisting of different modules developed according to the Oriya Language Structure. It can be used in different application areas like Word Sense Disambiguation (WSD), Machine Translation (MT), and Spell Checker with Grammar Correction. It is developed by Indian Languages Technology Research-Oriya, located at the Dept. of Computer Science and Application, Utkal University. The centre is one out of twelve other resource centres established by MIT, Government of India. The R & D activities include Intelligent Document Processing (OCR-Oriya), Natural Language Processing (NLP) and Speech Processing and Cross Lingual Information Access (CLIA). Under NLP section are

Oriya Wordnet (OriNet), Trilingual Dictionary, Spell and Grammar Checker, Morphological analyzer which can help and facilitate other areas of NLP.

Tamil WordNet

A Tamil WordNet has been developed by the AU-KBC (Anna University-KB Chandrasekhar) Research Centre in the MIT (Madras Institute of Technology) Campus of Anna University, Chennai in collaboration with Dr. S. Rajendran of Tamil University, Thanjavur. Tamil WordNet relies on Rajendran's (2001) Modern Tamil Thesaurus that is based on Nida's (1975) Componential Analysis of Meaning. This work is available in the electronic form. Tamil vocabulary is classified into four major domains: entities, abstracts, events and relationals based on the part-of-speech categories. Tamil WordNet is an attempt to build a lexical network for Tamil language along the lines of the English WordNet so that it can be used as a tool for enhancing the performance of MT systems involving Tamil. Each word is assigned a set of all possible senses it can take and various relationships between the words are captured by networking the sense of these words in an appropriate manner using the relationship as a function.

SAMPARK: Indian Language MT System

Sampark is a multipart machine translation system developed with the combined efforts of 11 institutions in India under the umbrella of consortium project " Indian Language to Indian Language Machine Translation" (ILMT) funded by TDIL program of Dept of IT, Govt. of India. ILMT project has developed language technology for 9 Indian languages resulting in MT for 18 language pairs. These are: 14 bi-directional pairs between Hindi and Urdu / Punjabi / Telugu / Bengali / Tamil / Marathi / Kannada and 4 bidirectional between Tamil and Malayalam / Telugu. The Sampark system is based on analyze- transfer-generate paradigm. First, analysis of the source language is done, then a transfer of vocabulary and structure to target language is carried out and finally the target language is generated. Each phase consists of multiple "modules" with 13 major ones. An advantage of this approach is that a particular language analyzer, can be developed once, independent of other languages and then paired with generators in other languages.

SARANSHAK

Saranshak is a Natural Language Based Summarizer developed by C-DAC, Pune. Summarizer is the art of abstracting key content from one or more information sources. Currently, this system uses a Concept and Name based information extraction approach. Summarizer has two approaches: extraction and abstraction. Extraction involves selecting original pieces from the source document and concatenating them to yield a shorter text. This approach does little to ensure that the summary is coherent, which can make the text hard to read. Abstraction paraphrases in more general terms what the text is about.

Saranshak uses a set of ranking strategies on sentence and on word level to calculate the relevancy of a sentence to a document. It extracts the most relevant sentences and creates a summary of the document from these sentences. The user can set the length of the summary.

SHIVA and SHAKTI MT System

Two machine translation systems from English to Hindi, Shiva and Shakti are being developed jointly by Carnegie Mellon University USA, Indian Institute of Science, Bangalore, India, and International Institute of Information Technology, Hyderabad. The two experimental systems have been released for experiments, trials, and user feedback. Currently Shakti (Version 0.81, New Release - 18th April, 2005) is working for three target languages (Hindi, Marathi and Telegu). The user has to log on to the system for translating English sentences into the appropriate language. The system asks the user to choose a font from a list and shows the translated output in the chosen font. If the user is not satisfied with the system generated translation, the system asks for meanings of various source language components (word, phrase and even sentence level) from the user and retranslates the input text

UCSG MAT

MAT is a machine aided translation system for translating English texts into Kannada. The Computer Science Dept. at the University of Hyderabad, under the leadership of Dr. K. Narayana Murthy, has developed the system, funded by the Karnataka government. This is essentially a transfer-based approach, and has been applied to the domain of government circulars. It works at sentence level. It parses an input sentence using the UCSG (Universal Clause Structure Grammar) parsing technology (also developed by Dr. K. Narayana Murthy) and then translates it into Kannada using the English-Kannada bilingual dictionary, Kannada Morphological Generator and the translation rules. It requires postediting.

UNL MT

The Universal Networking Language (UNL) is an international project of the United Nations University, with an aim to create an Interlingua for all major human languages. IIT Bombay is the Indian participant in UNL, and is working on MT systems between English, Hindi and Marathi using the UNL formalism. This essentially uses an interlingual approach—input in the source language is converted into UNL using an 'enconverter', and then deconverted into the target language using a 'deconverter'.

English-Hindi MAT

The Computer Science and Engineering Department of Jadavpur University has worked on an machine translation system ANUBAAD for translating English news items to Bengali using a phrasal Example Based Machine Translation (EBMT) approach. The current version of the system works at the sentence level. A separate activity was carried on for developing a semantics-based EBMT system for translating English news headlines to Bengali. The English-Bengali MT system architecture has been used to develop a English – Hindi MT system that works at the simple sentence level. These machine translation systems are used for teaching the students and researchers who work in the area of machine translation. Recently, works on Bengali –English and Manipuri – English machine translation systems have been started.

List of Resource Centres working in the field of Machine Translation in India

ASR, M	Academy of Sanskrit Research, Melkote
AU-KBC, C	Anna University's KB Channdrasekhar Research Centre, Chennai
C-DAC, B	Centre for Development of Advanced Computing, Bangalore
C-DAC, M	Centre for Development of Advanced Computing, Mumbai (Erstwhile NCST)
C-DAC, N	Centre for Development of Advanced Computing, Noida (Erstwhile Electronics, Research and Development Centre of India)
C-DAC, MH	Centre for Development of Advanced Computing, Mohali (Erstwhile CEDIT)
C-DAC, T	Centre for Development of Advanced Computing, Thiruvananthapuram (Erstwhile Electronics, Research and Development Centre of India)
CEERI, D	Central Electronics Engineering Research Institute, Delhi
CIIL, M	Central Institute of Indian Languages, Mysore
IBM	International Business Machines, U.S.A.
IIT-B	Indian Institute of Technology, Mumbai
IIT-K	Indian Institute of Technology, Kanpur
IIT-G	Indian Institute of Technology, Guwahati
ISI-K	Indian Statistical Institute, Kolkata

JNU, ND	Jawaharlal Nehru University, New Delhi
LTRC, IIIT, H	Language Technologies Research Centre, International Institute of Information Technology, Hyderabad
ILTR-Oriya	Indian Languages Technology Research-Oriya, Dept. of Computer Science and Application, Utkal University

The Librarian's Role In Facilitating Translation

The duty of the library in providing translations and/or information related to translation is to have information about translation pools and centres, professional associations, government agencies, commercial publishers and their products, and directories of translators and translating firms. As appropriate for its clientele, the library should maintain those published sources on an up-to-date basis, and it should be able to assist clients in identifying institutions holding the needed translations, should the library itself not own them. Finally, as appropriate, library staff members or resource people who are available when needed should be able to translate, to abstract, or to make summaries of materials that are in demand for translation by clients.

Nowadays, the induction of machine translation softwares completely revolutionized the existing translation procedure. The role of translators has changed to post-translation editors. Hence, a librarian should have knowledge about different MT softwares (and how to use) in different Indian languages and also Resource Centres responsible for development and distribution of these softwares. He should also know about Machine Translation scenario in the world so that despite the continuing inadequacies in bibliographic control of access to translations, clients should feel that the library does its utmost in its attempt to meet their requirements.

Conclusion

In a large multi-lingual society like India, there is a great demand for translation of documents from one language to another. Machine Translation in India is relatively young. The earliest efforts date from the late 80s and early 90s. We find that the initiative taken by the Department of Information Technology (DIT), Ministry of Communication & Information Technology (MC&IT), Govt. of India in early 1980s marked the beginning of Machine Translation projects in India. Technology Development for Indian Languages (TDIL) Programme initiated by the Department of Information Technology (DIT), has funded several projects carried out by IITs, C-DACs, and many universities and institutions throughout the country for the development of machine translation technology and softwares. Most of these projects were carried out in 1990s. Some projects have been completed. New initiatives are also being taken. As a result of R & D carried out by these institutions, machine translation softwares have been developed which enable translation between English and Hindi, from English and Hindi to other Indian languages as well as between pairs of regional languages. The different projects carried out subsequently benefit the entire non-English speaking masses, constituting 95% of the total population of India, as a start to make effectively available to them the vast knowledge reservoir associated with the English language.

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